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February 7, 2012

Mr. Kenneth Bardo - LU-9J  
U.S. EPA Region V  
Corrective Action Section  
77 West Jackson Boulevard  
Chicago, IL 60604-3507

VIA FEDEX

Re: Chlorobenzene Process Area (CPA) Groundwater Monitoring Program  
4<sup>th</sup> Quarter 2011 Data Report  
Solutia Inc., W. G. Krummrich Plant, Sauget, IL

Dear Mr. Bardo:

Enclosed please find the 4<sup>th</sup> Quarter 2011 Data Report (the first such) for the Chlorobenzene Process Area (CPA) Groundwater Monitoring Program for Solutia Inc.'s W. G. Krummrich Plant, Sauget, IL. This 4<sup>th</sup> quarter 2011 monitoring documents conditions before startup of the remedies now under construction; the next semiannual monitoring in May 2012 will be the first after startup.

If you have any questions or comments regarding this report, please contact me at (314) 674-3312 or [gmrina@solutia.com](mailto:gmrina@solutia.com)

Sincerely,

A handwritten signature in blue ink, appearing to read "Gerald M. Rinaldi".

Gerald M. Rinaldi  
Manager, Remediation Services

Enclosure

cc: Distribution List

## **DISTRIBUTION LIST**

**Chlorobenzene Process Area (CPA) Groundwater Monitoring Program  
4<sup>th</sup> Quarter 2011 Data Report  
Solutia Inc., W. G. Krummrich Plant, Sauget, IL**

### USEPA

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4<sup>TH</sup> QUARTER 2011  
DATA REPORT

CHLOROBENZENE PROCESS  
AREA GROUNDWATER  
MONITORING PROGRAM

SOLUTIA INC.  
W.G. KRUMMRICH FACILITY  
SAUGET, ILLINOIS

*Prepared for*

Solutia Inc.  
575 Maryville Centre Drive  
St. Louis, Missouri 63141

February 2012



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Project: **21562722.00001**

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## 1.0 INTRODUCTION

This report presents the results of the 4th Quarter 2011 (4Q11) sampling event performed at the Solutia Inc. (Solutia) W.G. Krummrich (WGK) Facility located in Sauget, Illinois (Site). This sampling event was conducted in accordance with procedures outlined in the Revised Long-Term Monitoring Program (LTMP) Work Plan (Solutia 2009). The objective of this work was to determine baseline groundwater conditions prior to implementation of remedial activities in the vicinity of the former Chlorobenzene Process Area (CPA) at WGK. The Site location is presented in **Figure 1**.

**Groundwater Sampling Location and Frequency** – Initial sampling of the CPA wells occurred 4Q11. For the 4Q11 groundwater sampling event, groundwater samples were collected from monitoring wells CPA-A-SHU, -MHU and -DHU, CPA-B-SHU, -MHU and -DHU, CPA-C-SHU, -MHU and -DHU, and CPA-D-SHU, -MHU and -DHU, all located at WGK in Sauget, Illinois. Monitoring well locations are presented in **Figure 2**.

**Groundwater Sampling Parameters** – During the 4Q11 groundwater sampling event, groundwater samples were analyzed for benzene, chlorobenzene, 1,2-dichlorobenzene, 1,3-dichlorobenzene, and 1,4-dichlorobenzene using USEPA Method 8260B.

Samples for analysis of Monitored Natural Attenuation (MNA) parameters were collected from all twelve CPA wells. Evaluation of the types of active natural attenuation processes at the site is based on the following key geochemical parameters:

- Electron Donors: Organic Carbon (Total and Dissolved)
- Electron Acceptors: Iron (Total and Dissolved)  
Manganese (Total and Dissolved)  
Nitrate  
Sulfate
- Biodegradation Byproducts: Carbon Dioxide  
Chloride  
Methane
- Biodegradation Indicators: Alkalinity

Direct demonstration of the occurrence of biodegradation processes is completed quarterly utilizing Microbial Insights ([www.microbe.com](http://www.microbe.com)) Bio-Trap<sup>®</sup> Samplers for Phospholipid Fatty Acid (PLFA) Analysis in each well.

## 2.0 FIELD PROCEDURES

URS Corporation (URS) conducted 4Q11 sampling activities between November 28 and December 1, 2011. Activities were completed in accordance with procedures outlined in the Revised LTMP Work Plan, including the collection of appropriate quality assurance and quality control (QA/QC) samples.

The following section summarizes field investigative procedures:

**Monitoring Well Installation and Development** – Twelve permanent monitoring wells were installed at WGK in the vicinity of the former Chlorobenzene Process Area in September 2010. Four clusters of three monitoring wells included a well installed in each of the shallow, medium and deep hydrogeologic units (SHU, MHU and DHU, respectively), and were given the following designations: CPA-A-SHU, -MHU and -DHU, CPA-B-SHU, -MHU and -DHU, CPA-C-SHU, -MHU and -DHU, and CPA-D-SHU, -MHU and -DHU (**Figure 2**).

Installation was completed by Layne-Christensen via sonic drilling techniques. The subsurface stratigraphy was logged by a qualified Geotechnology, Inc., field scientist in accordance with the Unified Soil Classification System (USCS) protocols and URS procedures. The field scientist noted soil attributes such as color, particle size, consistency, moisture content, structure, odor (if obvious) and organic content (if visible). Soil boring logs are included in **Appendix A**.

The wells were constructed of 2-inch-diameter stainless steel riser pipe and nominal 5-foot-long, 10-slot wire-wound screen with bottom caps. Wells were installed in minimum 6-inch-diameter steel override cased holes extending to the target depth to stabilize the borehole and to isolate shallow zones from deeper zones. After the screens and casings were installed in the boreholes, the filter pack, bentonite seal, and grout seal were placed as the override casings were retracted from the boreholes. The annular spaces between the screens and casings were filled with a 20/40 sand to approximately 2 feet above the tops of the screens. The remaining annular spaces on top of the sand were tremie-grouted to the ground surface; for the MHU and DHU wells, grout was tremied in approximately 20-foot lifts to allow for settling and heat dissipation.

The wells in clusters A, C and D were completed with lockable stick-up well protectors; concrete pads were poured to complete the installations for each of these clusters. Cluster B wells were completed as flush-mounted wells with lockable-expandable caps and also within a concrete pad. In addition to soil borings logs, well construction diagrams are included in Appendix A.

Following installation, all wells were developed by Layne-Christensen, under the supervision of Geotechnology, Inc., until a minimum of five well volumes were removed and fine-grained materials were removed.

**Groundwater Level Measurements** – URS personnel used an electronic oil/water interface probe to measure depth to static groundwater levels and if present, the thickness of non-aqueous phase liquid (NAPL), if present, to 0.01 feet. As part of the LTMP, depth to groundwater measurements were collected on November 10, 2011 from accessible existing WGK monitoring wells (i.e., BSA-, CPA-, GM-, K-, PS-MW- and PMA-series) and piezometer clusters (installed for the Sauget Area 2 RI/FS and WGK CA-750 Environmental Indicator projects) specified in the Revised LTMP Work Plan (Solutia 2009) (**Figure 3**). This group of

wells and piezometers includes those that compose the CPA Program. NAPL was not detected within any of the twelve CPA monitoring wells.

Well gauging information for the 4Q11 event is presented in **Table 1**. As the middle and deep hydrogeologic units are the primary migration pathway for constituents present in groundwater at, and in the vicinity of, the WGK Facility, a groundwater potentiometric surface map based on water level data from wells screened in the Middle Hydrogeologic Unit (MHU) and Deep Hydrogeologic Unit (DHU) is presented as **Figure 3**.

**Groundwater Sampling** – Low-flow sampling techniques were used for groundwater sample collection. At each monitoring well, disposable, low-density polyethylene tubing was attached to a submersible pump, which was then lowered into the well to the middle of the screened interval. Monitoring wells were purged at a rate of 300 to 400 mL/minute to minimize drawdown. If significant drawdown occurred, flow rates were reduced.

Drawdown was measured periodically throughout purging to ensure that it did not exceed 25% of the distance between the pump intake and the top of the screen. Once the flow rate and drawdown were stable, field measurements were collected approximately every three to five minutes.

Purging of a well was considered complete when the following water quality parameters remained stable over three consecutive flow-through cell volumes:

Parameter	Stabilization Guidelines
Dissolved Oxygen (DO)	+/- 10% or +/-0.2 mg/L, whichever is greatest
Oxidation-Reduction Potential (ORP)	+/- 20 mV
pH	+/- 0.2 units
Specific Conductivity	+/- 3%

Sampling commenced upon completion of purging. Prior to sample collection, the flow-through cell was bypassed to allow for collection of uncompromised groundwater. Samples were collected at a flow rate less than or equal to the rate at which stabilization was achieved. Sample containers were filled based on laboratory analysis to be performed, in the following order:

- Volatile Organic Compounds (VOCs)
- Gas Sensitive Parameters (e.g., methane, carbon dioxide)
- General Chemistry (i.e., alkalinity, chloride, total and dissolved iron, total and dissolved manganese, nitrate, sulfate, and total and dissolved organic carbon)
- Field Parameters (i.e., dissolved oxygen, ferrous iron, and oxidation-reduction potential).

Samples collected for ferrous iron, dissolved iron and dissolved manganese analysis were filtered in the field using in-line 0.2 micron disposable filters, represented by a notation of "F (0.2)" in the sample nomenclature.

Quality assurance/quality control (QA/QC) samples consisting of analytical duplicates (AD) and equipment blanks (EB) were collected at a rate of 10% and matrix spike/matrix spike duplicates (MS/MSD) were collected at a rate of 5%. In addition, trip blanks accompanied each shipment containing samples for VOC analysis.

Each investigative or QC sample was labeled immediately following collection. Each sample identification number consisted of the following nomenclature "CPA-MW#-MMYY-QAC" where:

- **Well ID** includes "CPA-" followed by #-#HU, denoting monitoring well location and hydrogeologic unit
- **MMYY** – Month and year of sampling quarter, e.g.: November (4th quarter) 2011 (1111)
- **QAC** denotes QA/QC sample
  - **AD** – analytical duplicate
  - **EB** – equipment blank
  - **MS** or **MSD** – Matrix Spike or Matrix Spike Duplicate

Upon collection and labeling, sample containers were immediately placed inside an iced cooler, packed in such a way as to help prevent breakage and maintain inside temperature at or below approximately 4°C. Field personnel recorded the project identification and number, sample description/location, required analysis, date and time of sample collection, type and matrix of sample, number of sample containers, preservative used (if applicable), analysis requested/comments, and sampler signature/date/time, with permanent ink on the chain-of-custody (COC). Prior to shipment, coolers were sealed between the lid and sides of the cooler with a custody seal, and then shipped to TestAmerica in Savannah, Georgia by means of an overnight delivery service. Field sampling data sheets are included in **Appendix B**, while copies of COCs are included in **Appendix C**.

Field personnel and equipment were decontaminated according to procedures specified in the Revised LTMP Work Plan to ensure the health and safety of those present, maintain sample integrity, and minimize movement of contamination between the work area and off-site locations. Equipment used on-site was decontaminated prior to beginning work, between sampling locations and/or uses, and prior to demobilizing from the site. Non-disposable purging and sampling equipment was decontaminated between each sample acquisition by washing with an Alconox® or equivalent detergent wash, a potable water rinse, and a distilled water rinse. Personnel and small equipment decontamination was performed at the sample locations. Disposable sampling equipment, such as gloves were collected and bagged on a daily basis and managed in accordance with Solutia procedures. Purge water was containerized and handled per Solutia procedures.

**Biodegradation Evaluation Sampling** - Bio-Trap® samplers provided by Microbial Insights, Inc. (Rockford, TN), were utilized in the CPA to provide information regarding biodegradation potential of the Deep Hydrogeologic Unit (DHU). Bio-Trap® samplers are passive sampling

tools which, over time, collect microbes across a membrane that serves as the sampling matrix.

On October 13, 2011, URS field personnel deployed Bio-Trap<sup>®</sup> samplers in each of the four DHU CPA wells for PLFA analysis. Bio-Trap<sup>®</sup> samplers were tied to stainless steel line attached to the well cap and lowered to the middle of the well screen.

On November 14, 2011, the Bio-Trap<sup>®</sup> samplers were retrieved from the wells, sealed in Ziploc<sup>®</sup> bags, labeled with the proper well identification and placed in an iced sample cooler with a signed COC. Sealed sample coolers were sent to Microbial Insights, Inc. for analysis.

### 3.0 LABORATORY PROCEDURES

Samples were analyzed by TestAmerica for VOCs and MNA parameters, using the following methodologies:

- VOCs, via USEPA SW-846 Method 8260B (dichlorobenzenes were quantitated using Method 8260B because of potential volatilization losses associated with Method 8270)
- MNA parameters: alkalinity (310.1), carbon dioxide (310.1), chloride (325.2), total and dissolved iron (6010B), total and dissolved manganese (6010B), dissolved gases (RSK 175), nitrate (353.2), sulfate (375.4), and total and dissolved organic carbon (415.1).

Laboratory results were provided in electronic and hard copy formats.

### 4.0 QUALITY ASSURANCE

Analytical data were reviewed for quality and completeness, as described in the Revised Long Term Monitoring Work Plan. Data qualifiers were added, as appropriate, and are included on the data tables and the laboratory result pages. The Quality Assurance report is included as **Appendix C**. The laboratory report along with data review and validation reports are included in **Appendix D**.

A total of 17 groundwater samples (twelve investigative samples, two field duplicates, one MS/MSD pair and one equipment blank) were prepared and analyzed by TestAmerica for combinations of VOCs, dissolved gases, metals, and general chemistry. In addition, four trip blanks were included in the coolers that contained samples for VOC analysis and were analyzed for VOCs. The results for the various analyses were submitted as sample delivery group (SDG) KPS068.

The samples contained in SDG KPS068 are listed below:

KPS068	
CPA-A-SHU-1111	CPA-C-DHU-1111
CPA-A-MHU-1111	CPA-D-SHU-1111
CPA-A-DHU-1111	CPA-D-SHU-1111-AD
CPA-B-SHU-1111	CPA-D-MHU-1111
CPA-B-SHU-1111-AD	CPA-D-DHU-1111
CPA-B-MHU-1111	4Q11 CPA Trip Blank #1
CPA-B-DHU-1111	4Q11 CPA Trip Blank #2
CPA-C-SHU-1111	4Q11 CPA Trip Blank #3
CPA-C-SHU-1111-EB	4Q11 CPA Trip Blank #4
CPA-D-MHU-1111	

Evaluation of the groundwater analytical data followed procedures outlined in the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (USEPA 2008), USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (USEPA 2004).

Based on the above mentioned criteria, groundwater results reported for the analyses performed were accepted for their intended use. Acceptable levels of accuracy and precision, based on MS/MSD, laboratory control sample (LCS), surrogate and field duplicate data were achieved for these SDGs to meet the project objectives. Completeness which is defined to be the percentage of analytical results which are judged to be valid, including estimated detect/non-detect (**J/UJ**) data was 100 percent.

## 5.0 OBSERVATIONS

Groundwater analytical detections and MNA results for the 4Q11 CPA sampling event are presented in **Tables 2** and **3**, respectively. Benzene was reported in samples collected from ten of the twelve wells during this sampling event at concentrations ranging from 2.9 µg/L (CPA-A-DHU) to 110,000 µg/L (CPA-B-MHU). Chlorobenzene was reported in samples collected from all twelve wells during this sampling event. Total chlorobenzenes (i.e., the sum of chlorobenzene, 1,2-dichlorobenzene, 1,3-dichlorobenzene, and 1,4- dichlorobenzene) were detected at concentrations ranging from 536.7 µg/L (CPA-A-MHU) to 180,000 µg/L (CPA-D-SHU). **Figures 4, 5** and **6** display concentrations of benzene and total chlorobenzenes from the 4Q11 sampling event in the shallow, middle and deep hydrogeologic units, respectively.

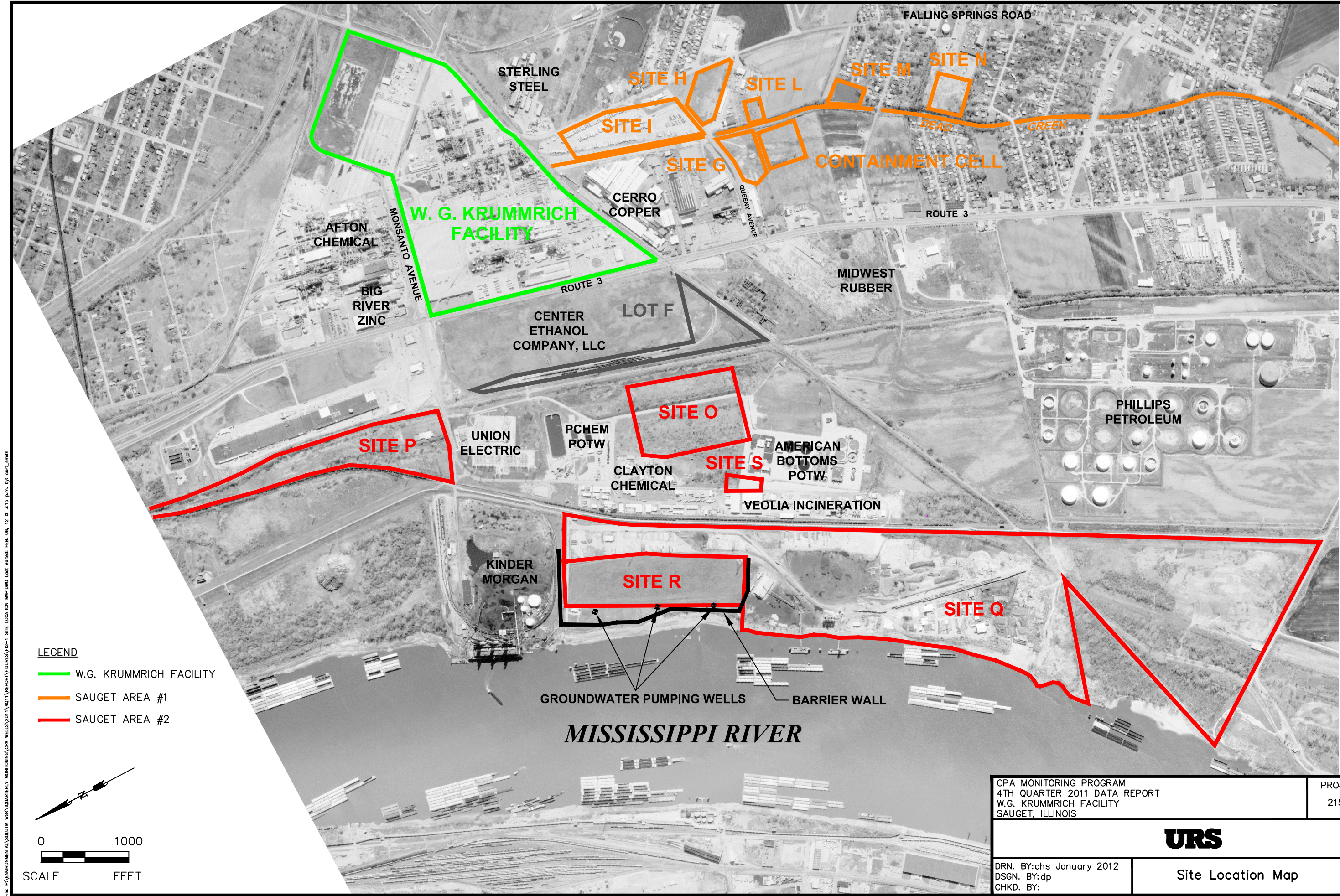
## 6.0 REFERENCES

Solutia Inc, 2009. Revised Long Term Monitoring Program Work Plan, Solutia Inc., W.G. Krummrich Facility, Sauget, Illinois, May 2009.

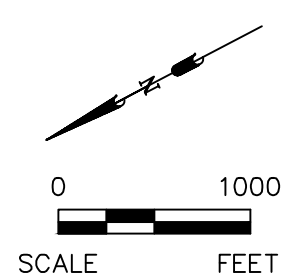
USEPA, 2004. Contract Laboratory Program National Functional Guidelines for Inorganic Data Review.

USEPA, 2008. Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review

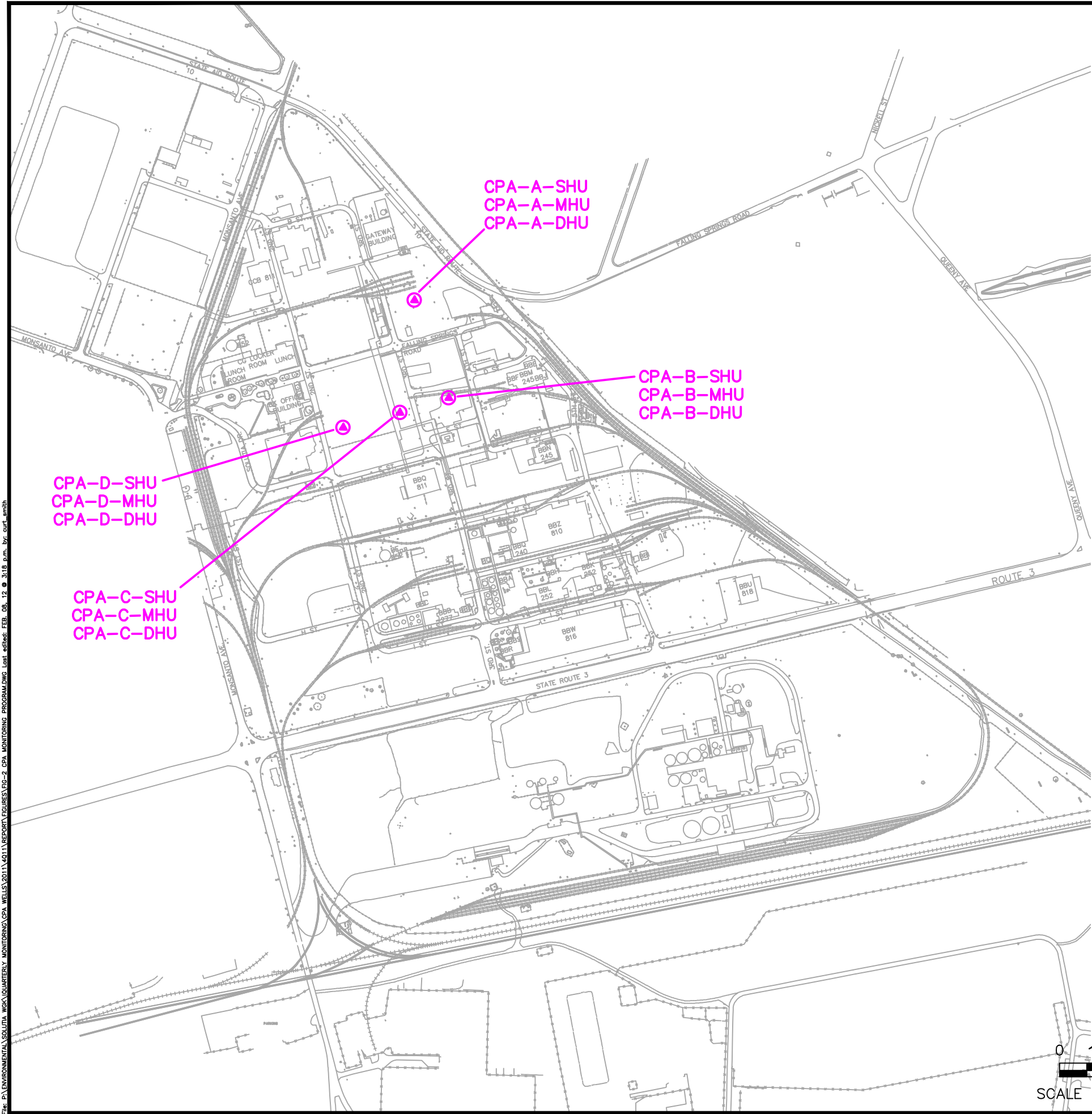
## Figures



- LEGEND**
- W.G. KRUMMRICH FACILITY
  - SAUGET AREA #1
  - SAUGET AREA #2



CPA MONITORING PROGRAM 4TH QUARTER 2011 DATA REPORT W.G. KRUMMRICH FACILITY SAUGET, ILLINOIS		PROJECT NO. 21562722
URS		FIG. NO. 1
DRN. BY:chs January 2012 DSGN. BY:dp CHKD. BY:	Site Location Map	



LEGEND

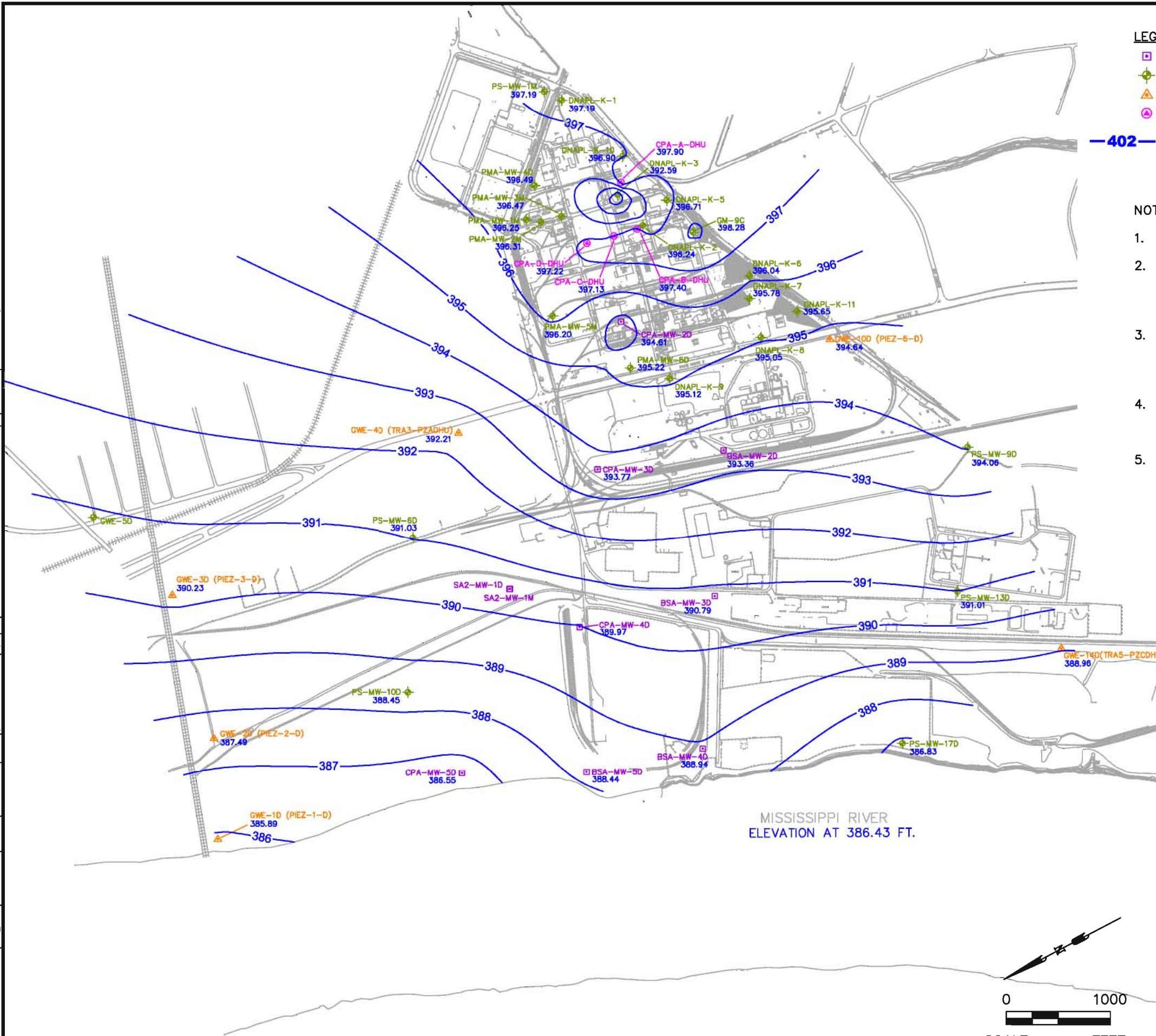
⬤ CPA MONITORING WELL LOCATION

NOTES:

1. REFER TO TABLE 1 FOR MONITORING WELL CONSTRUCTION INFORMATION.

File: F:\ENVIRONMENTAL\SOLUTIONS\WORK\QUARTERLY MONITORING\CPA WELLS\2011\4Q1\REPORT\FIGURES\FIG-2 CPA MONITORING PROGRAM.DWG Last edited: FEB. 08. 12 @ 3:18 p.m. by: curt\_smb

CPA MONITORING PROGRAM 4TH QUARTER 2011 DATA REPORT W.G. KRUMMRICH FACILITY SAUGET, ILLINOIS		PROJECT NO.  21562722
URS		
DRN. BY:chs January 2012 DSGN. BY:dp CHKD. BY:	CPA Monitoring Program Well Locations	FIG. NO.  2



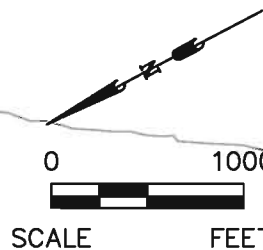
#### LEGEND

- LONG-TERM MONITORING WELL USED FOR GROUNDWATER CONTOURING
- ◆ OTHER MONITORING WELL USED FOR GROUNDWATER CONTOURING
- ▲ PIEZOMETER CLUSTER USED FOR GROUNDWATER CONTOURING
- CPA MONITORING WELL USED FOR GROUNDWATER CONTOURING
- 402— GROUNDWATER ELEVATION CONTOUR (FT NAVD)

#### NOTES:

1. GROUNDWATER LEVELS WERE MEASURED NOVEMBER 10, 2011.
2. CONTOURS GENERATED PRIMARILY USING SURFER SOFTWARE VERSION 8. SOME INTERPRETATION WAS DONE USING PROFESSIONAL JUDGMENT AND CONTOUR LINES WERE MODIFIED BY HAND.
3. THE MISSISSIPPI RIVER STAGE ELEVATION PRESENTED ON THE FIGURE IS AN AVERAGE ELEVATION FOR THE TIME OF THE GAUGING EVENT. THE INFORMATION WAS OBTAINED FROM THE SITE R BUBBLER.
4. LOCATIONS WITH WELLS SCREENED IN BOTH THE MHU AND DHU UTILIZED THE DHU WELL FOR DEVELOPMENT OF THE POTENTIOMETRIC SURFACE MAP.
5. WELL GWE-5D WAS NOT INCLUDED IN THE COMPREHENSIVE GAUGING EVENT.

MISSISSIPPI RIVER  
ELEVATION AT 386.43 FT.



CPA MONITORING PROGRAM  
4TH QUARTER 2011 DATA REPORT  
W.G. KRUMMRICH FACILITY  
SAUGET, ILLINOIS

PROJECT NO.  
21562682

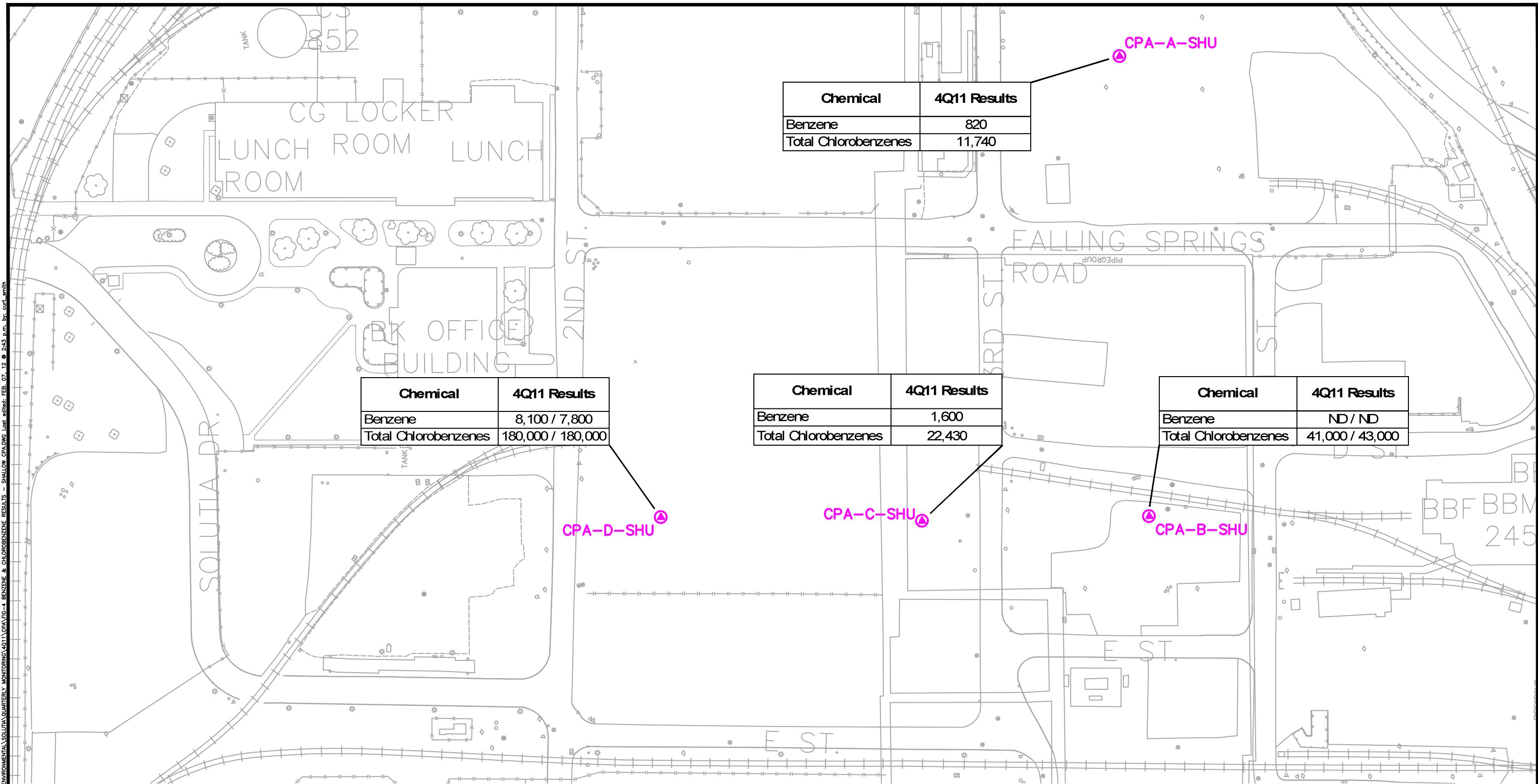
**URS**

DRN. BY:chs January 2012  
DSGN. BY:dp  
CHKD. BY:

Potentiometric Surface Map  
Middle/Deep Hydrogeologic Unit

FIG. NO.  
3

File: G:\DOCUMENTS AND SETTINGS\CURT SMITH\MY DOCUMENTS\PROJECTS\ENVIRONMENTAL\SOLUTIONIA\QUARTERLY MONITORING\4Q11\CPA\FIG-4 BENZENE & CHLOROBENZENE RESULTS - SHALLOW CPA.DWG Last edited: FEB. 07, 12 @ 2:43 p.m. by: curt\_smith

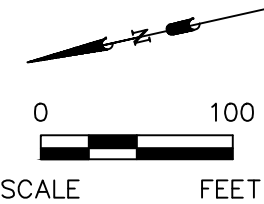


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CPA MONITORING WELL LOCATION

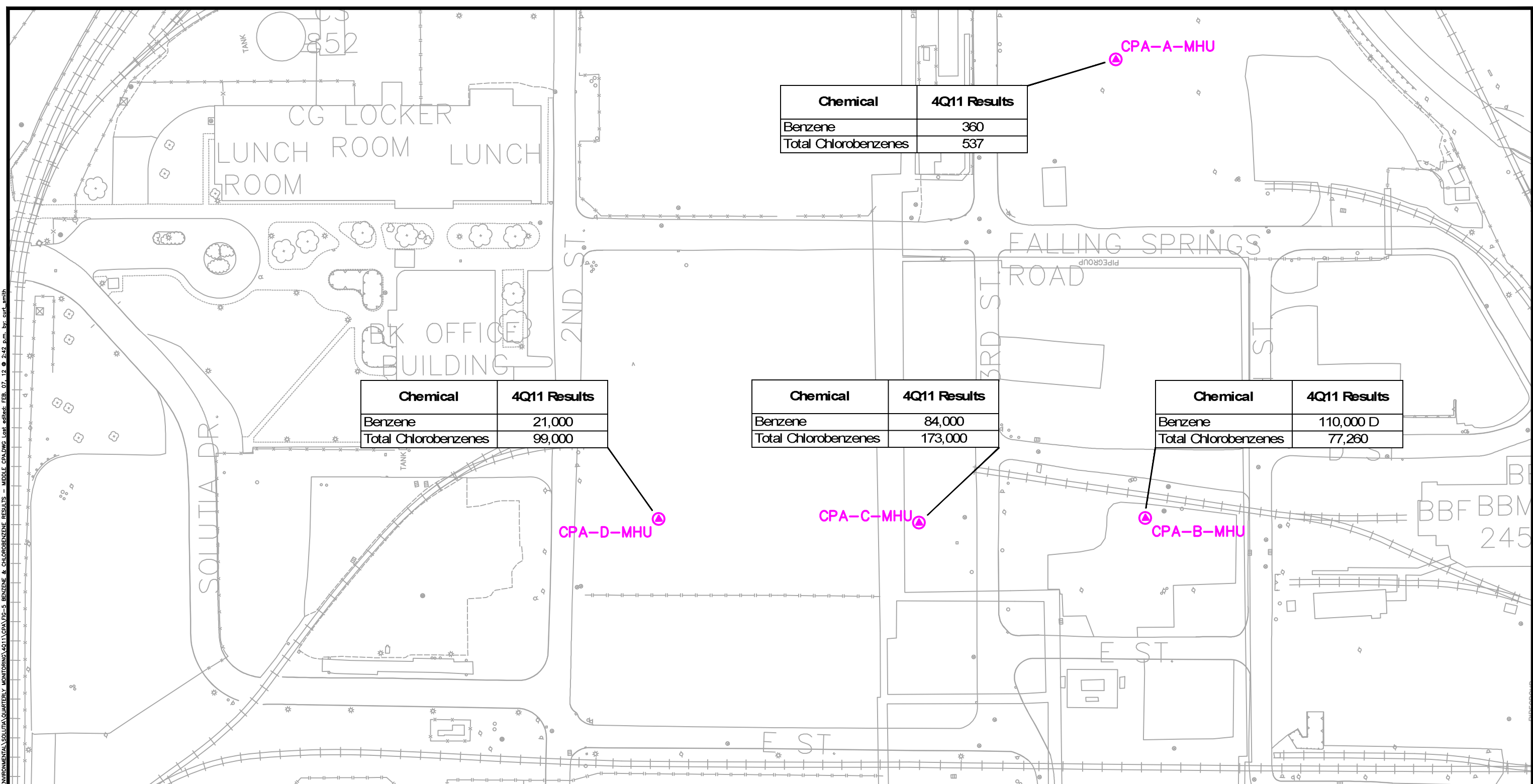
NOTES:

- TOTAL CHLOROBENZENES RESULTS INCLUDE THE SUM OF MONOCHLOROBENZENE, 1,2-DICHLOROBENZENE, 1,3-DICHLOROBENZENE, AND 1,4-DICHLOROBENZENE.
- RESULTS SHOWN ARE IN ug/L.
- ND DENOTES ANALYTE OR ANALYTES NOT DETECTED.
- MULTIPLE SAMPLE RESULTS INDICATE A DUPLICATE SAMPLE.



CPA MONITORING PROGRAM 4TH QUARTER 2011 DATA REPORT W.G. KRUMMRICH FACILITY SAUGET, ILLINOIS		PROJECT NO. 21562722
URS		
DRN. BY:chs January 2012 DSGN. BY:dp CHKD. BY:	Benzene & Total Chlorobenzene Results – Shallow Hydrogeologic Unit	FIG. NO. 4

File: G:\DOCUMENTS AND SETTINGS\CURT SMITH\MY DOCUMENTS\PROJECTS\ENVIRONMENTAL\SOLUTIONA\QUARTERLY MONITORING\4Q11\CPA\FIG-5 BENZENE & CHLOROBENZENE RESULTS - MIDDLE CPA.DWG Last edited: FEB. 07. 12 @ 2:42 p.m. by: curt.smith

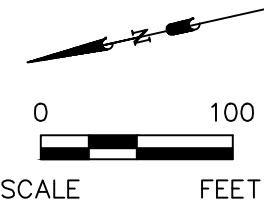


LEGEND

CPA MONITORING WELL LOCATION

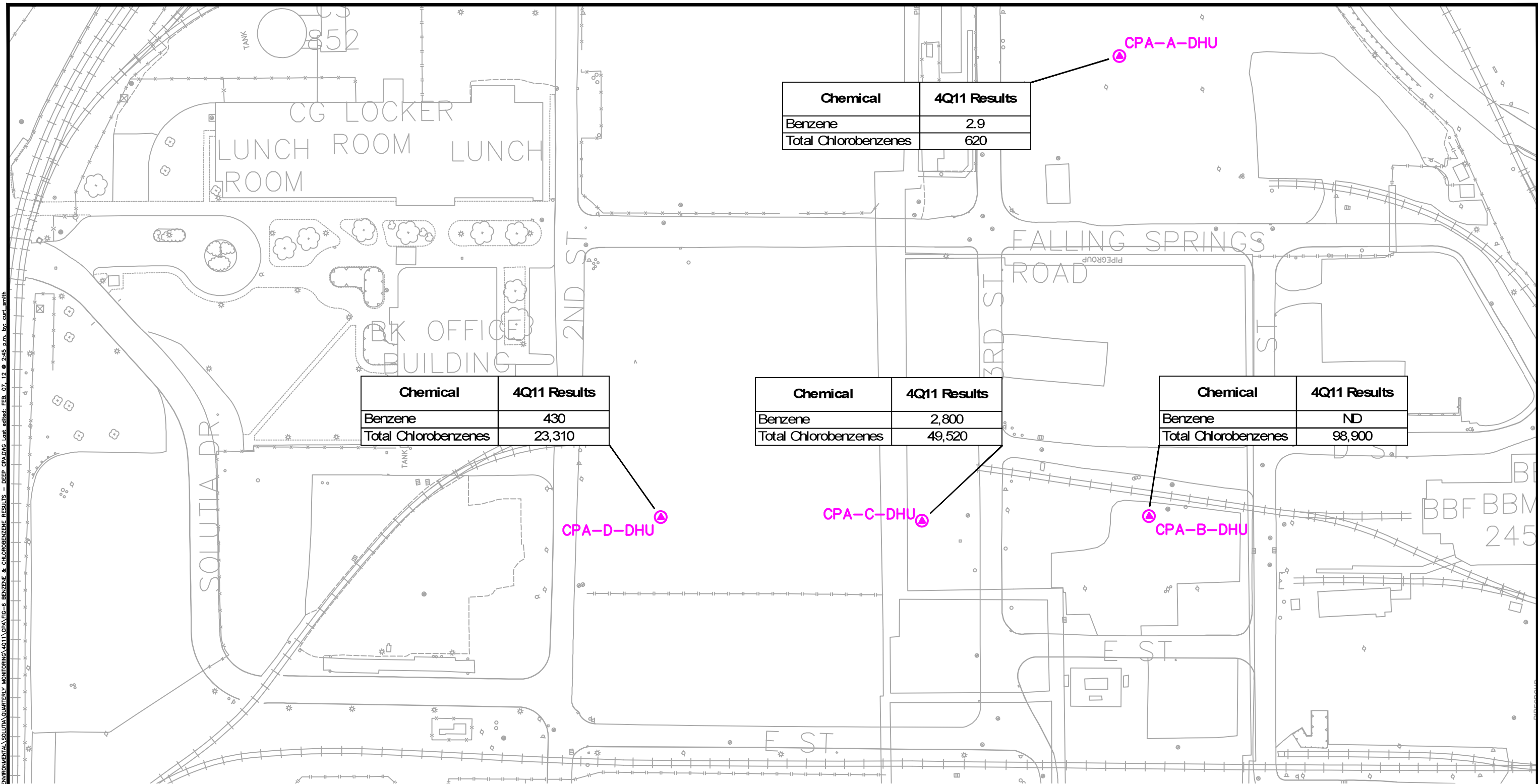
NOTES:

1. TOTAL CHLOROBENZENES RESULTS INCLUDE THE SUM OF MONOCHLOROBENZENE, 1,2-DICHLOROBENZENE, 1,3-DICHLOROBENZENE, AND 1,4-DICHLOROBENZENE.
2. RESULTS SHOWN ARE IN ug/L.
3. ND DENOTES ANALYTE OR ANALYTES NOT DETECTED.
4. MULTIPLE SAMPLE RESULTS INDICATE A DUPLICATE SAMPLE.



CPA MONITORING PROGRAM 4TH QUARTER 2011 DATA REPORT W.G. KRUMMRICH FACILITY SAUGET, ILLINOIS		PROJECT NO. 21562722
URS		
DRN. BY:chs January 2012 DSGN. BY:dp CHKD. BY:www.urscorp.com	Benzene & Total Chlorobenzene Results – Middle Hydrogeologic Unit	FIG. NO. 5

File: G:\DOCUMENTS AND SETTINGS\CURT SMITH\MY DOCUMENTS\PROJECTS\ENVIRONMENTAL\SOLUTIONA\QUARTERLY MONITORING\4Q11\CPA\FIG-6 BENZENE & CHLOROBENZENE RESULTS - DEEP CPA.DWG Last edited: FEB. 07. 12 @ 2:45 p.m. by: curt\_smith

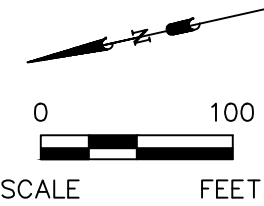


LEGEND

CPA MONITORING WELL LOCATION

NOTES:

- TOTAL CHLOROBENZENES RESULTS INCLUDE THE SUM OF MONOCHLOROBENZENE, 1,2-DICHLOROBENZENE, 1,3-DICHLOROBENZENE, AND 1,4-DICHLOROBENZENE.
- RESULTS SHOWN ARE IN ug/L.
- ND DENOTES ANALYTE OR ANALYTES NOT DETECTED.
- MULTIPLE SAMPLE RESULTS INDICATE A DUPLICATE SAMPLE.



CPA MONITORING PROGRAM 4TH QUARTER 2011 DATA REPORT W.G. KRUMMRICH FACILITY SAUGET, ILLINOIS		PROJECT NO. 21562722
URS		
DRN. BY:chs January 2012 DSGN. BY:dp CHKD. BY:www.urscorp.com	Benzene & Total Chlorobenzene Results – Deep Hydrogeologic Unit	FIG. NO. 6

## Tables

**Table 1**  
**Monitoring Well Gauging Information**

Well ID			Construction Details						November 10, 2011		
	Northing	Easting	Ground Elevation (feet)	Casing Elevation (feet)	Depth to Top of Screen (feet bgs)	Depth to Bottom of Screen (feet bgs)	Top of Screen Elevation (feet)	Bottom of Screen Elevation (feet)	Depth to Water (feet btoc)	NAPL Thickness (feet)	Water Elevation (feet)
<b>Shallow Hydrogeologic Unit (SHU 395-380 feet NAVD 88)</b>											
CPA-A-SHU	702505.466	2296272.563	413.97	416.35	28	33	385.97	380.97	18.07	--	398.28
CPA-B-SHU	702577.436	2295802.773	409.16	408.84	21	25.4	388.16	383.76	9.95	--	398.89
CPA-C-SHU	702811.805	2295844.800	408.86	408.46	21	25.8	387.86	383.06	10.13	--	398.33
CPA-D-SHU	703069.185	2295912.891	409.73	412.38	21	25.4	388.73	384.33	14.4	--	397.98
<b>Middle Hydrogeologic Unit (MHU 380-350 feet NAVD 88)</b>											
CPA-A-MHU	702504.481	2296277.339	413.98	416.25	58	62.2	355.98	351.78	17.97	--	398.28
CPA-B-MHU	702576.375	2295806.456	409.13	408.76	51	55.5	358.13	353.63	10.95	--	397.81
CPA-C-MHU	702811.056	2295848.917	408.90	408.57	51	55.5	357.90	353.40	10.93	--	397.64
CPA-D-MHU	703068.463	2295916.773	409.72	412.32	51	55.8	358.72	353.92	14.8	--	397.52
<b>Deep Hydrogeologic Unit (DHU 350 feet NAVD 88 - Bedrock)</b>											
CPA-A-DHU	702507.893	2296275.441	413.95	416.24	108	113.3	305.95	300.65	18.35	--	397.89
CPA-B-DHU	702580.047	2295806.102	409.12	408.68	101	106.5	308.12	302.62	11.32	--	397.36
CPA-C-DHU	702809.969	2295852.771	408.92	408.57	101	106	307.92	302.92	11.39	--	397.18
CPA-D-DHU	703072.290	2295915.773	409.63	412.20	101	105.9	308.63	303.73	15.11	--	397.09

\* - Elevation based upon North American Vertical Datum (NAVD) 88 datum

bgs - below ground surface

btoc - Below top of casing

**Table 2**  
**Groundwater Analytical Results**

Sample ID	Sample Date	VOC (µg/L)				
		Benzene	Chlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene
CPA-A-SHU-1111	11/28/2011	820	8,200	240	<100	3,300
CPA-A-MHU-1111	11/28/2011	360	530	<5	<5	6.7
CPA-A-DHU-1111	11/28/2011	2.9	220	200	20	180
CPA-B-SHU-1111	12/1/2011	<500	41,000	<500	<500	<500
CPA-B-SHU-1111-AD	12/1/2011	<200	43,000 D	<200	<200	<200
CPA-B-MHU-1111	12/1/2011	110,000 D	77,000 D	<200	<200	260
CPA-B-DHU-1111	11/30/2011	<500	41,000	23,000	1,900	33,000
CPA-C-SHU-1111	11/30/2011	1,600	6,700	11,000	630	4,100
CPA-C-MHU-1111	11/30/2011	84,000	140,000	16,000	<2500	17,000
CPA-C-DHU-1111	11/30/2011	2,800	33,000	5,000	520	11,000
CPA-D-SHU-1111	11/29/2011	8,100	180,000	<2,000	<2,000	<2,000
CPA-D-SHU-1111-AD	11/29/2011	7,800	180,000	<1,000	<1,000	<1,000
CPA-D-MHU-1111	11/29/2011	21,000	75,000	12,000	<1000	12,000
CPA-D-DHU-1111	11/29/2011	430	17,000	2,500	510	3,300

Notes:

µg/L = micrograms per liter

< = Result is non-detect, less than the reporting limit given.

**BOLD** indicates concentration greater than reporting limit.

AD = Analytical Duplicate

D = compound analyzed at a dilution

**Table 3**  
**Monitored Natural Attenuation Results Summary**

Sample ID	Sample Date	Alkalinity (mg/L)	Carbon Dioxide (mg/L)	Chloride (mg/L)	Dissolved Oxygen (mg/L)	Ethane (ug/L)	Ethylene (ug/L)	Ferrous Iron (mg/L)	Iron (mg/L)	Iron, Dissolved (mg/L)	Manganese (mg/L)	Manganese, Dissolved (mg/L)	Methane (ug/L)	Nitrogen, Nitrate (mg/L)	Sulfate as SO <sub>4</sub> (mg/L)	Dissolved Organic Carbon (mg/L)	Total Organic Carbon (mg/L)	ORP (mV)
CPA-A-SHU-1111	11/28/2011	350	40	27	-0.04	5	<1		11		0.41		5,700	<0.05	<5		31	-53.90
CPA-A-SHU-F(0.2)-1111	11/28/2011							2.69		11		0.4				21		
CPA-A-MHU-1111	11/28/2011	730	20	26	-0.03	12	<1		1.1		0.31		11,000	<0.05	<5		7	-124.79
CPA-A-MHU-F(0.2)-1111	11/28/2011							0.96		0.97		0.31				7		
CPA-A-DHU-1111	11/28/2011	540	29	54	0.03	1.7	<1		7.2		0.36		110	<0.05	89		6.6	-93.93
CPA-A-DHU-F(0.2)-1111	11/28/2011							>3.3		7.3		0.37				6.3		
CPA-B-SHU-1111	12/1/2011	420	110	300	-0.14	<1.1	<1		38		2.2		50	<0.05	90		3.7 J	247.64
CPA-B-SHU-F(0.2)-1111	12/1/2011							>3.3		38		2.2				3.6		
CPA-B-MHU-1111	12/1/2011	540	150	350	-0.18	140	7		39		2.3		10000	<0.05	<5		23	230.04
CPA-B-MHU-F(0.2)-1111	12/1/2011							>3.3		40		2.4				24		
CPA-B-DHU-1111	11/30/2011	510	26	66	-0.11	2.4	<1		9.1		0.51		130	<0.05	74		8.5 J	176.64
CPA-B-DHU-F(0.2)-1111	11/30/2011							>3.3		8.7		0.49				8.7		
CPA-C-SHU-1111	11/30/2011	450	32	300	-0.15	<1.1	<1		0.33		2		410	5.2	180		310	197.97
CPA-C-SHU-F(0.2)-1111	11/30/2011							0.57		0.18		2				320		
CPA-C-MHU-1111	11/30/2011	460	160	680	-0.15	6.1	18		46		2.8		14,000	<0.05	110		45	218.89
CPA-C-MHU-F(0.2)-1111	11/30/2011							>3.3		45		2.7				43		
CPA-C-DHU-1111	11/30/2011	550	22	69 J	-0.15	7.1	<1		2.4		0.47		400	<0.05	66		23	180.06
CPA-C-DHU-F(0.2)-1111	11/30/2011							2.2		2.3		0.46				23		
CPA-D-SHU-1111	11/29/2011	<5	<5	300	-0.10	<1.1	<1		130		3.8		9	19	2300		150	212.02
CPA-D-SHU-F(0.2)-1111	11/29/2011							>3.3		130		3.8				130		
CPA-D-MHU-1111	11/29/2011	590	110	450	-0.11	15	<1		1.6		2.4		11,000	<0.05	200		120	-29.84
CPA-D-MHU-F(0.2)-1111	11/29/2011							>3.3		1.6		2.4				120		
CPA-D-DHU-1111	11/29/2011	620	22	81	-0.09	19	<1		0.33		0.33		2,300	0.076	<5		26	-103.81
CPA-D-DHU-F(0.2)-1111	11/29/2011							>3.3		0.28		0.33				24		

Notes:

DO and ORP were measured in the field using an In-Situ Inc. TROLL 9500 equipped with a flow-thru cell. Values presented represent final measurements before sampling

Ferrous Iron readings were measured in the field using a colorimeter after the groundwater passed through a 0.2 µm filter

F(0.2) = Sample was filtered utilizing a 0.2 µm filter during sample collection

mg/L = milligrams per liter

mV = millivolts

ug/L = micrograms per liter

< = Result is non-detect, less than the reporting limit given

A blank space indicates sample not analyzed for select analyte

## **Appendix A**

### **Soil Boring Logs with Monitoring Well Construction Diagrams**



LOG OF BORING 2002 WL J017210.01-2 - SOLUTIA.GPJ GTINC 0638301.GPJ 1/5/11

Surface Elevation: <u>413.98</u>		Completion Date: <u>9/16/10</u>		GRAPHIC LOG	DRY UNIT WEIGHT (pcf) SPT BLOW COUNTS CORE RECOVERY/RQD	PID READINGS (ppm)	SAMPLES	WELL DIAGRAM	
Datum <u>msl</u>		Northing: <u>702504.4805</u> Easting: <u>2296277.3385</u>						Borehole Diameter: 6-Inches	
DEPTH IN FEET	DESCRIPTION OF MATERIAL								
	FILL: brown, medium sand and gravel					1.3	1A		
	FILL: gray, silty clay and gravel					13.8	1B		
5	Gray, silty CLAY - CL					0.0	1C		
	Gray, fine SAND - SP					0.4	1D		
10						0.9	2A		
						2.5	2B		
15						3.8	2C		
						3.2	2D		
20						2.2	3A		
						8.1	3B		
25						12.4	3C		
						33.3	3D		
30						23.4	4A		
	Gray, medium to coarse SAND - SW					52.2	4B		
35						30.9	4C		
						18.25	4D		
40	Dark gray, medium to coarse SAND - SW					13.5	5A		
						8.6	5B		
45						1.4	5C		
						0.4	5D		
50						29.4	6A		
	Black, medium to coarse SAND - SW					63.8	6B		53.0 361.0
55						16.5	6C		56.0 358.0
						11.8	6D		58.0 356.0
60						445	7A		
						467	7B		62.2 351.8
	Boring terminated at 63 feet.								

2" stainless steel

Bentonite Grout

Bentonite Chips

Filter sand

2" stainless steel 0.10 slotted Bottom cap

#### GROUNDWATER DATA

ENCOUNTERED AT 5.5 FEET  $\nabla$

#### DRILLING DATA

☒ AUGER ☐ HOLLOW STEM

WASHBORING FROM      FEET

Layne DRILLER KCR LOGGER

LS-1 DRILL RIG

HAMMER TYPE     

REMARKS: Grout was installed in 20 foot lifts. Well casing installed above ground with protective casing and bumper posts.

Drawn by: KSA      Checked by: RBP      App'vd. by: DTK  
Date: 9/27/10      Date: 10/11/10      Date: 1/5/11



Solutia - CPA Well Installation

LOG OF BORING: CPA-A-MHU

Project No. J017210.01

NOTE: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL. GRAPHIC LOG FOR ILLUSTRATION PURPOSES ONLY.

LOG OF BORING 2002 WL J017210.01 - SOLUTIA.GPJ GTINC 0638301.GPJ 1/5/11

Surface Elevation: <u>413.95</u> Datum <u>msl</u>		Completion Date: <u>9/16/10</u> Northing: <u>702507.8925</u> Easting: <u>2296275.441</u>		GRAPHIC LOG	DRY UNIT WEIGHT (pcf) SPT BLOW COUNTS CORE RECOVERY/ROD	PID READINGS (ppm)	SAMPLES	WELL DIAGRAM	
								Borehole Diameter: 6-inches	
DEPTH IN FEET	DESCRIPTION OF MATERIAL							<div style="display: flex; justify-content: space-between;"> <span>Depth (ft)</span> <span>Elev. (ft)</span> </div>	
5	FILL: brown, medium sand and gravel*					1.3	1A		
	FILL: gray, silty clay and gravel*					13.8	1B		
	Gray, silty CLAY - CL*					0.0	1C		
	Gray, fine SAND - SP					0.4	1D		
						0.9	2A		
						2.5	2B		
						3.8	2C		
						3.2	2D		
						2.2	3A		
						8.1	3B		
						12.4	3C		
						33.3	3D		
						23.4	4A		
	Gray, medium to coarse SAND - SW					52.2	4B		
						30.9	4C		
						18.25	4D		
	Dark gray, medium to coarse SAND - SW					13.5	5A		
						8.6	5B		
						1.4	5C		
						0.4	5D		
						29.4	6A		
	Black, medium to coarse SAND - SW					63.8	6B		
						16.5	6C		
						11.8	6D		
						445	7A		
						467	7B		
						8.8	7C		
	Gray, medium SAND - SP					7.8	7D		
						6.2	8A		
						10.3	8B		
						3.5	8C		
	Gray, medium SAND with gravel - SW					6.8	8D		
						2.9	9A		
						4.3	9B		
	Gray, coarse SAND with gravel, trace cobbles - SW					5.7	9C		
						4.4	9D		
						2.1	10A		
						3.6	10B		
	Gray, coarse SAND with gravel - SW					1.7	10C		
						0.9	10D		
						1.1	11A		
						0.0	11B		
						0.4	11C		
						1.2	11D		
						0.7	12A		
Boring terminated at 113.3 feet.									
GROUNDWATER DATA		DRILLING DATA							
ENCOUNTERED AT <u>5.5</u> FEET $\nabla$		<input checked="" type="checkbox"/> AUGER <input type="checkbox"/> HOLLOW STEM WASHBORING FROM <u>    </u> FEET <u>Layne</u> DRILLER <u>KCR</u> LOGGER <u>LS-1</u> DRILL RIG HAMMER TYPE <u>    </u>							
REMARKS: *Sample submitted for laboratory analysis. (0-1', 2-3', 4-5') Grout was installed in 20 foot lifts. Well casing installed above ground with protective casing and bumper posts.		<div style="display: flex; justify-content: space-between;"> <div>             Drawn by: KSA              Date: 9/27/10 </div> <div>             Checked by: RBP              Date: 10/11/10 </div> <div>             App'vd. by: DTK              Date: 1/5/11 </div> </div>							
		Solutia -CPA Well Installation							
		LOG OF BORING: CPA-A-DHU							
		Project No. J017210.01							

NOTE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL GRAPHIC LOG FOR ILLUSTRATION PURPOSES ONLY.

Surface Elevation: <u>409.16</u> Datum <u>msl</u>		Completion Date: <u>9/9/10</u> Northing: <u>702577.4362</u> Easting: <u>2295802.7728</u>		GRAPHIC LOG  DRY UNIT WEIGHT (pcf) SPT BLOW COUNTS CORE RECOVERY/RQD		PID READINGS (ppm)  SAMPLES		<b>WELL DIAGRAM</b>  Borehole Diameter: 6-inches  	
DEPTH IN FEET	DESCRIPTION OF MATERIAL								
	ASPHALT - 5 inches			1.8	1A	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>2" stainless steel</p> <p>Bentonite Grout</p> <p>2" stainless steel 0.10 slotted</p> <p>Bottom cap</p> </div> <div style="width: 50%;"> <p>Concrete 0.3 408.8</p> <p>1.0 408.2</p> <p>Bentonite Chips</p> <p>16.0 393.2</p> <p>19.0 390.2</p> <p>21.0 388.2</p> <p>25.4 383.8</p> <p>Filter sand</p> </div> </div>			
	GRAVEL - 7 inches								
	FILL: brownish-black, silty clay and gravel								
	Brown SILT, trace sand - ML			0.2	1B				
5				0.0	1C				
	Brown, sandy SILT - ML			0.0	1D				
10	Dark gray, silty, fine SAND - SM			1.4	2A				
				28.6	2B				
15				20.2	2C				
	Dark gray SILT - ML			17.3	2D				
20				8.8	3A				
	Dary gray, fine to medium SAND - SW			6.5	3B				
25				8.3	3C				
	Boring terminated at 26 feet.								
30									

**GROUNDWATER DATA**

ENCOUNTERED AT 6.5 FEET ☒

**DRILLING DATA**

☒ AUGER ☐ HOLLOW STEM

WASHBORING FROM      FEET

Layne DRILLER KCR LOGGER

LS-1 DRILL RIG

HAMMER TYPE

**REMARKS:** Grout was installed in a continuous lift. Well casing installed below ground with flush mount cover.

Drawn by: KSA    Checked by: RPB    App'vd. by: DTK

Date: 9/27/10    Date: 10/11/10    Date: 1/5/11

**GEOTECHNOLOGY INC.**  
FROM THE GROUND UP

Solutia -CPA Well Installation

LOG OF BORING: CPA-B-SHU

Project No. J017210.01

LOG OF BORING 2002 WL J017210.01-3 - SOLUTIA GPJ GTINC 0638301.GPJ 1/5/11

LOG OF BORING 2002 WL J017210.01-2 - Solutia.GPJ GTINC 0638301.GPJ 1/5/11  
 NOTE: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL. GRAPHIC LOG FOR ILLUSTRATION PURPOSES ONLY.

Surface Elevation: <u>409.13</u> Completion Date: <u>9/9/10</u> Datum <u>msl</u> Northing: <u>702576.3747</u> Easting: <u>2295806.4558</u>		GRAPHIC LOG	DRY UNIT WEIGHT (pcf) SPT BLOW COUNTS CORE RECOVERY/RQD	PID READINGS (ppm)	SAMPLES	<b>WELL DIAGRAM</b>  Borehole Diameter: 6-inches	
DEPTH IN FEET	DESCRIPTION OF MATERIAL					Depth (ft) / Elev. (ft)	
5	ASPHALT - 5 inches GRAVEL - 7 inches FILL: brownish-black, silty clay and gravel Brown SILT, trace sand - ML			1.8	1A		
				0.2	1B		
				0.0	1C		
				0.0	1D		
				1.4	2A		
				28.6	2B		
				20.2	2C		
				17.3	2D		
				8.8	3A		
				6.5	3B		
				8.3	3C		
				5.8	3D		
				104	4A		
				160	4B		
				274	4C		
				303	4D		
45				172	5A		
				129	5B		
				63.8	5C		
				52.4	5D		
				217	6A		
				696	6B		
				642	6C		
	Boring terminated at 56 feet.						

<p><b>GROUNDWATER DATA</b></p> <p>ENCOUNTERED AT <u>6.5</u> FEET ▽</p>	<p><b>DRILLING DATA</b></p> <p><input checked="" type="checkbox"/> AUGER    <input type="checkbox"/> HOLLOW STEM          WASHBORING FROM <u>    </u> FEET          Layne DRILLER    KCR LOGGER          LS-1 DRILL RIG          HAMMER TYPE <u>    </u></p>
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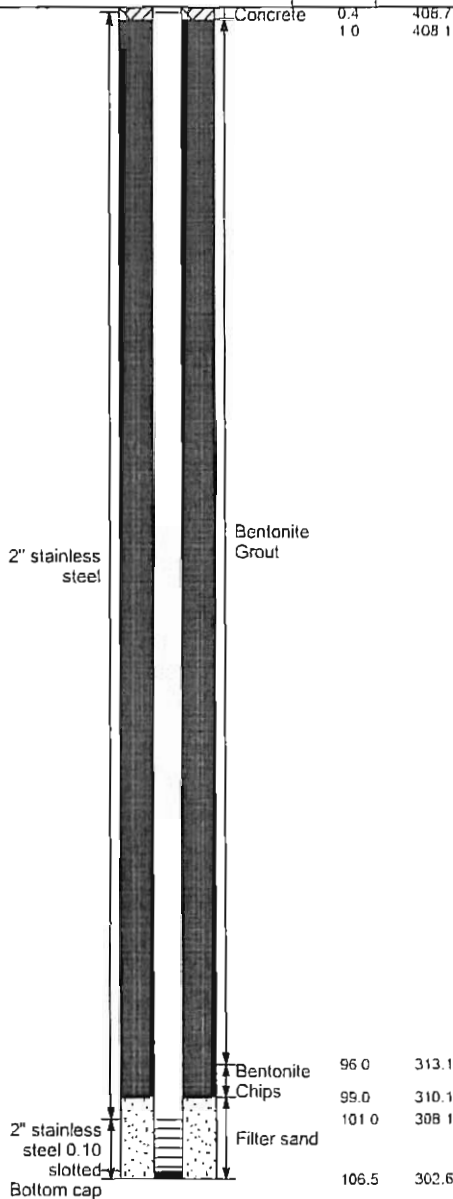
Drawn by: KSA    Checked by: RBP    App'vd. by: DTK Date: 9/27/10    Date: 10/11/10    Date: 1/5/11		
Solutia - CPA Well Installation		
LOG OF BORING: CPA-B-MHU		
Project No. J017210.01		

REMARKS: Grout was installed in 20 foot lifts. Well casing installed below ground with flush mount cover.

NOTE: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL. GRAPHIC LOG FOR ILLUSTRATION PURPOSES ONLY.

LOG OF BORING 2002 WL J017210.01 - SOLUTIA.GPJ GTINC 0638301.GPJ 1/5/11

Surface Elevation: <u>409.12</u>		Completion Date: <u>9/9/10</u>		GRAPHIC LOG	DRY UNIT WEIGHT (pcf) SPT BLOW COUNTS CORE RECOVERY/RQD	PID READINGS (ppm)	SAMPLES	WELL DIAGRAM			
Datum <u>msl</u>		Northing: <u>702580.0466</u> Easting: <u>2295806.102</u>						Borehole Diameter: 6-inches		Depth (ft) Elev. (ft)	
DEPTH IN FEET	DESCRIPTION OF MATERIAL										
	ASPHALT - 5 inches					1.8	1A				
5	GRAVEL - 7 inches					0.2	1B				
	FILL: brownish-black, silty clay and gravel*					0.0	1C				
10	Brown SILT, trace sand - ML*					0.0	1D				
	Brown, sandy SILT - ML					1.4	2A				
15	Dark gray, silty, fine SAND - SM					28.6	2B				
						20.2	2C				
20	Dark gray SILT - ML					17.3	2D				
	Dary gray, fine to medium SAND - SW					8.8	3A				
25						6.5	3B				
						8.3	3C				
30						5.8	3D				
						104	4A				
35	Dark gray, silty CLAY - CL					160	4B				
	Black, silty, fine SAND - SM					274	4C				
40	Dark gray, fine to medium SAND - SW					303	4D				
						172	5A				
45						129	5B				
						63.8	5C				
50						52.4	5D				
	WOOD, trace fine sand					217	6A				
55	Gray, coarse SAND with gravel - SW					696	6B				
	Dark gray, fine SAND - SP					642	6C				
60						278	6D				
						399	7A				
65						618	7B				
						411	7C				
70						239	7D				
	Dark gray, coarse SAND - SP					219	8A				
75	Dark gray, coarse SAND with gravel - SW					443	8B				
						1211	8C				
80						1587	8D				
						1837	9A				
85						1528	9B				
	Gray, coarse SAND - SP					619	9C				
90						413	9D				
						205	10A				
95						84.3	10B				
						24.7	10C				
100	Gray, coarse SAND with gravel - SW					12.8	10D				
						49.7	11A				
105						81.0	11B				
						132	11C				
110	Boring terminated at 106.5 feet.										

#### GROUNDWATER DATA

ENCOUNTERED AT 6.5 FEET  $\nabla$

#### DRILLING DATA

☒ AUGER ☐ HOLLOW STEM

WASHBORING FROM      FEET

Layne DRILLER KCR LOGGER

LS-1 DRILL RIG

HAMMER TYPE     

REMARKS: \*Sample submitted for laboratory analysis. (0-2.5', 2.5-5') Grout was installed in 20 foot lifts. Well casing installed below ground with flush mount cover.

Drawn by: KSA      Checked by: RBP      App'vd. by: DTK  
Date: 9/27/10      Date: 10/11/10      Date: 1/5/11



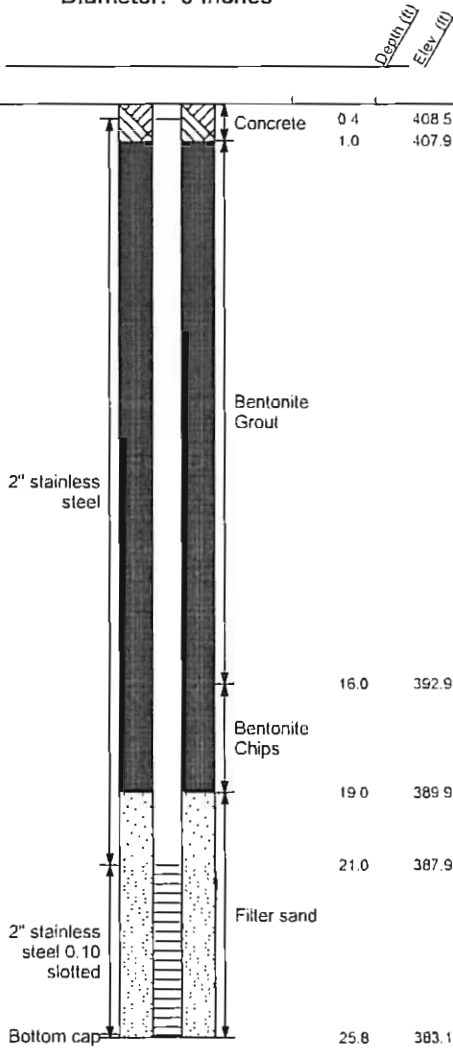
Solutia -CPA Well Installation

LOG OF BORING: CPA-B-DHU

Project No. J017210.01

NOTE: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL. GRAPHIC LOG FOR ILLUSTRATION PURPOSES ONLY.

LOG OF BORING 2002 WL J017210.01-3 - SOLUTIA GPJ GTINC 0638301 GPJ 1/5/11

Surface Elevation: <u>408.86</u>		Completion Date: <u>9/13/10</u>		GRAPHIC LOG	DRY UNIT WEIGHT (pcf) SPT BLOW COUNTS CORE RECOVERY/RQD	PID READINGS (ppm)	SAMPLES	WELL DIAGRAM			
Datum <u>msl</u>		Northing: <u>702811.805</u> Easting: <u>2295844.8003</u>						Borehole Diameter: 6-inches			
DEPTH IN FEET	DESCRIPTION OF MATERIAL										
	CONCRETE - 4 inches								Concrete	0.4	408.5
	GRAVEL - 8 inches						64	1A		1.0	407.9
	FILL: brown, silty clay, brick and rock fragments										
5	Gray SILT - ML						132	1B			
							263	1C			
							294	1D			
10	Gray, fine SAND - SP						164	2A			
	Gray SILT - ML						52.1	2B			
15							39.6	2C		16.0	392.9
	Gray, fine to medium SAND - SW						7.8	2D		19.0	389.9
20							33.3	3A		21.0	387.9
	Gray, silty, fine SAND - SM						82.1	3B			
25							206	3C			
	Boring terminated at 26 feet.									25.8	383.1
30											

#### GROUNDWATER DATA

ENCOUNTERED AT 6 FEET  $\nabla$

#### DRILLING DATA

☒ AUGER ☐ HOLLOW STEM  
WASHBORING FROM      FEET  
Layne DRILLER KCR LOGGER  
LS-1 DRILL RIG  
HAMMER TYPE     

REMARKS: Grout was installed in a continuous lift. Well casing installed above ground with protective casing and bumper posts.

Drawn by: KSA    Checked by: RPB    App'vd. by: DTK  
Date: 9/27/10    Date: 10/11/10    Date: 1/5/11

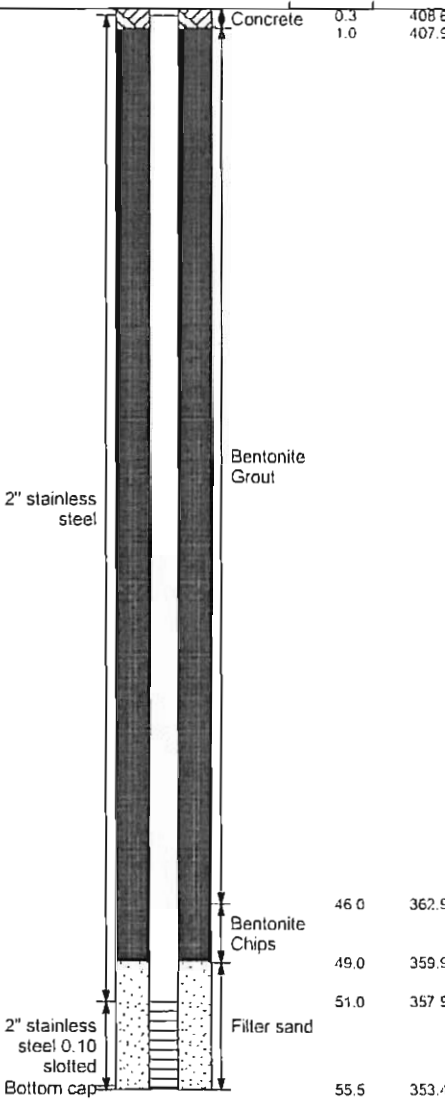


Solutia -CPA Well Installation

LOG OF BORING: CPA-C-SHU

Project No. J017210.01

LOG OF BORING 2002 WL J017210.01-2, SOLUTIA.GPJ, GTINC 0638301, GPJ 1/5/11  
 NOTE: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES  
 AND THE TRANSITION MAY BE GRADUAL. GRAPHIC LOG FOR ILLUSTRATION PURPOSES ONLY.

Surface Elevation: <u>408.90</u>		Completion Date: <u>9/13/10</u>		GRAPHIC LOG	DRY UNIT WEIGHT (pcf) SPT BLOW COUNTS CORE RECOVERY/RQD	PID READINGS (ppm)	SAMPLES	WELL DIAGRAM	
Datum <u>msl</u>		Northing: <u>702811.056</u> Easting: <u>2295848.9168</u>						Borehole Diameter: 6-inches	
DEPTH IN FEET	DESCRIPTION OF MATERIAL								
	CONCRETE - 4 inches					64	1A		Depth (ft) Elev. (ft)
	GRAVEL - 8 inches					132	1B		0.3 1.0
	FILL: brown, silty clay, brick and rock fragments					263	1C		408.5 407.9
5	Gray SILT - ML					294	1D		
						164	2A		
10	Gray, fine SAND - SP					52.1	2B		
	Gray SILT - ML					39.6	2C		
15						7.8	2D		
	Gray, fine to medium SAND - SW					33.3	3A		
20						82.1	3B		
	Gray, silty, fine SAND - SM					206	3C		
25						193	3D		
	Gray, fine SAND - SP					204	4A		
30						693	4B		
35						1252	4C		
						398	4D		
40						451	5A		
	Gray, coarse SAND - SP					404	5B		
45						213	5C		46.0 362.9
						173	5D		49.0 359.9
50						163	6A		51.0 357.9
	Gray, coarse SAND with gravel - SW					289	6B		
55						421	6C		55.5 353.4
	Boring terminated at 56 feet.								
60									

#### GROUNDWATER DATA

ENCOUNTERED AT 6 FEET ∅

#### DRILLING DATA

☒ AUGER ☐ HOLLOW STEM  
 WASHBORING FROM      FEET  
Layne DRILLER KCR LOGGER  
LS-1 DRILL RIG  
 HAMMER TYPE     

REMARKS: Grout was installed in 20 foot lifts. Well casing installed above ground with protective casing and bumper posts.

Drawn by: KSA    Checked by: RBP    App'vd. by: DTK  
 Date: 9/27/10    Date: 10/11/10    Date: 1/5/11



Solutia - CPA Well Installation

LOG OF BORING: CPA-C-MHU

Project No. J017210.01

NOTE - STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL. GRAPHIC LOG FOR ILLUSTRATION PURPOSES ONLY.

Surface Elevation: <u>408.92</u> Datum <u>msl</u>		Completion Date: <u>9/13/10</u> Northing: <u>702809.9693</u> Easting: <u>2295852.7713</u>		GRAPHIC LOG	DRY UNIT WEIGHT (pcf) SPT BLOW COUNTS CORE RECOVERY/RQD	PID READINGS (ppm)	SAMPLES	WELL DIAGRAM	
DEPTH IN FEET		DESCRIPTION OF MATERIAL						Borehole Diameter: 6-inches	
								<div style="display: flex; justify-content: space-between;"> <span>Depth (ft)</span> <span>Elev. (ft)</span> </div>	
		CONCRETE - 4 inches				64	1A		
5		GRAVEL - 8 inches				132	1B		
		FILL: brown, silty clay, brick and rock fragments*				263	1C		
10		Gray SILT - ML*				294	1D		
		Gray, fine SAND - SP				164	2A		
15		Gray SILT - ML				52.1	2B		
		Gray, fine to medium SAND - SW				39.6	2C		
20		Gray, silty, fine SAND - SM				7.8	2D		
		Gray, fine SAND - SP				33.3	3A		
25						82.1	3B		
						206	3C		
30						193	3D		
						204	4A		
35						693	4B		
						1252	4C		
40						398	4D		
		Gray, coarse SAND - SP				451	5A		
45						404	5B		
						213	5C		
50						173	5D		
		Gray, coarse SAND with gravel - SW				163	6A		
55						289	6B		
		Gray, fine to medium SAND - SW				421	6C		
60						354	6D		
		Gray, coarse SAND with gravel - SW				394	7A		
65						326	7B		
		Gray, coarse SAND - SP				185	7C		
70						273	7D		
		Gray, coarse SAND with gravel - SW				406	8A		
75						362	8B		
						394	8C		
80						182	8D		
						46.2	9A		
85		Black, coarse SAND with gravel - SW				73.8	9B		
		Gray, coarse SAND - SP				91.5	9C		
90						74.8	9D		
						51.2	10A		
95						38.6	10B		
						24.7	10C		
100		Black, coarse SAND with gravel - SW				23.9	10D		
						11.7	11A		
105						8.9	11B		
		Boring terminated at 106 feet.				11.6	11C		
110									

**GROUNDWATER DATA**

ENCOUNTERED AT 6 FEET ✓

**DRILLING DATA**

☒ AUGER   ☐ HOLLOW STEM

WASHBORING FROM      FEET

Layne DRILLER   KCR LOGGER

LS-1 DRILL RIG

HAMMER TYPE

REMARKS: \*Sample submitted for laboratory analysis. (2'-4', 4'-6') Grout was installed in 20 foot lifts. Well casing installed above ground with protective casing and bumper posts.

Drawn by: KSA   Checked by: RBP   App'vd. by: DTK

Date: 9/27/10   Date: 10/11/10   Date: 1/5/11

**GEOTECHNOLOGY**  
FROM THE GROUND UP

Solutia -CPA Well Installation

LOG OF BORING: CPA-C-DHU

Project No. J017210.01

Concrete   0.4   408.6  
1.0   407.9

Bentonite Grout

2" stainless steel

2" stainless steel 0.10 slotted

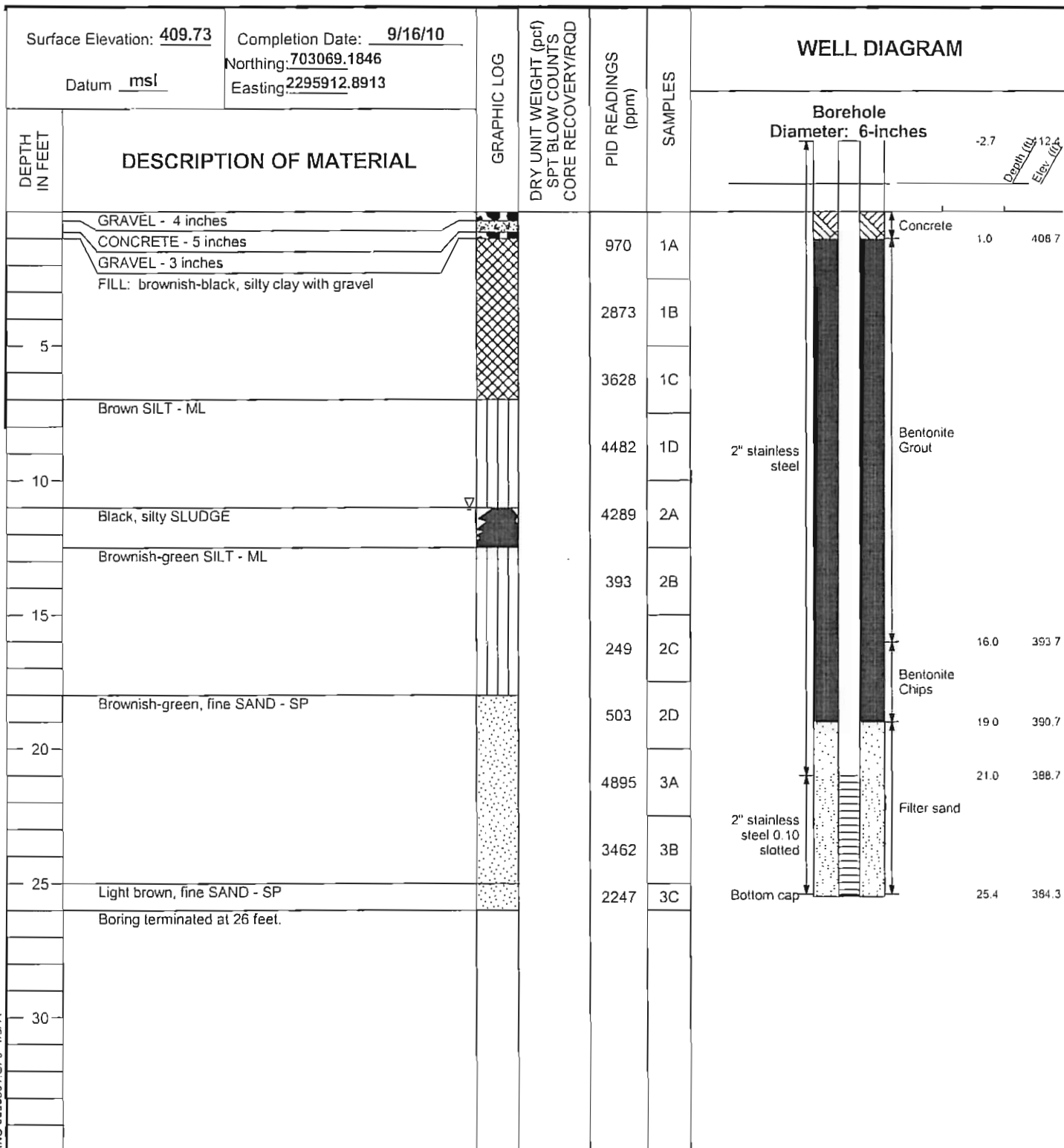
Bottom cap

Bentonite Chips   96.0   312.9  
Filter sand   99.0   309.9  
101.0   307.9  
106.0   302.9

Surface Elevation: 409.73Completion Date: 9/16/10Datum mslNorthing: 703069.1846Easting: 2295912.8913

## WELL DIAGRAM

NOTE: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL. GRAPHIC LOG FOR ILLUSTRATION PURPOSES ONLY.



## GROUNDWATER DATA

ENCOUNTERED AT 11 FEET  $\nabla$ 

## DRILLING DATA

☒ AUGER ☐ HOLLOW STEMWASHBORING FROM      FEETLayne DRILLER KCR LOGGERLS-1 DRILL RIGHAMMER TYPE     

REMARKS: Grout was installed in a continuous lift. Well casing installed above ground with protective casing and bumper posts.

Drawn by: KSA

Checked by: RPB

App'vd. by: DTK

Date: 9/27/10

Date: 10/11/10

Date: 1/5/11


**GEOTECHNOLOGY**  
 FROM THE GROUND UP

Solutia -CPA Well Installation

LOG OF BORING: CPA-D-SHU

Project No. J017210.01

LOG OF BORING 2002 WL J017210.01-3, SOLUTIA GPJ GTINC 0538301 GPJ 1/5/11



NOTE: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL. GRAPHIC LOG FOR ILLUSTRATION PURPOSES ONLY

LOG OF BORING 2002 W/L J017210.01 - Solutia GPJ GTINC 0638301 GPJ 1/5/11

Surface Elevation: <u>409.63</u>		Completion Date: <u>9/15/10</u>		GRAPHIC LOG	DRY UNIT WEIGHT (pcf) SPT BLOW COUNTS CORE RECOVERY/RQD	PID READINGS (ppm)	SAMPLES	WELL DIAGRAM	
Datum <u>msl</u>		Northing: <u>703072.2897</u> Easting: <u>2295915.7733</u>						Borehole Diameter: 6-inches	
DEPTH IN FEET	DESCRIPTION OF MATERIAL								
5	GRAVEL - 4 inches				970	1A			
	CONCRETE - 5 inches				2873	1B			
	GRAVEL - 3 inches				3628	1C			
10	FILL: brownish-black, silty clay with gravel*				4482	1D			
	Brown SILT - ML*				4289	2A			
15	Black, silty SLUDGE				393	2B			
	Brownish-green SILT - ML				249	2C			
20	Brownish-green, fine SAND - SP				503	2D			
					4895	3A			
25	Light brown, fine SAND - SP				3462	3B			
					2247	3C			
30					680	3D			
					385	4A			
35					593	4B			
					1120	4C			
40					670	4D			
	Gray, fine SAND - SP				1391	5A			
45					361	5B			
					290	5C			
50	Gray, coarse SAND - SP				103	5D			
	Gray, coarse SAND with gravel - SW				126	6A			
55					191	6B			
					549	6C			
60					117	6D			
					168	7A			
65					142	7B			
					104	7C			
70					214	7D			
					125	8A			
75					53.6	8B			
					48.6	8C			
80					36.2	8D			
	Grayish-black, coarse SAND with gravel - SW				30.4	9A			
85					39.5	9B			
	Gray, medium to coarse SAND - SW				51.6	9C			
90	Gray, coarse SAND with gravel - SW				33.1	9D			
					6.1	10A			
95					6.9	10B			
					1.7	10C			
100					19.4	10D			
					50.7	11A			
105					88.5	11B			
					36.1	11C			
110	Boring terminated at 106 feet.								

GROUNDWATER DATA		DRILLING DATA	
ENCOUNTERED AT <u>11</u> FEET $\nabla$		<input checked="" type="checkbox"/> AUGER <input type="checkbox"/> HOLLOW STEM WASHBORING FROM <u>    </u> FEET <u>Layne</u> DRILLER <u>KCR</u> LOGGER <u>LS-1</u> DRILL RIG HAMMER TYPE <u>    </u>	
REMARKS: *Sample submitted for laboratory analysis. (2.5-5', 7.5-10') Grout was installed in 20 foot lifts. Well casing installed above ground with protective casing and bumper posts.			

Drawn by: KSA	Checked by: RBP	App'vd. by: DTK
Date: 9/27/10	Date: 10/11/10	Date: 1/5/11

Solutia -CPA Well Installation

LOG OF BORING: CPA-D-DHU

Project No. J017210.01

**Appendix B**

**Groundwater Purging and Sampling Forms**

**Troll 9000**

11/28/11

**Low-Flow System****ISI Low-Flow Log****Project Information:**

Operator Name Mike Corbett  
Company Name URS Corporation  
Project Name Solutia WGK  
Site Name Quarterly Groundwater Sampling - CPA

**Pump Information:**

Pump Model/Type Proactive SS Monsoon  
Tubing Type LDPE  
Tubing Diameter 0.19 [in]  
Tubing Length 0 [ft]  
Pump placement from TOC 0 [ft]

**Well Information:**

Well Id CPA-A-SHU  
Well diameter 2 [in]  
Well total depth 33 [ft]  
Depth to top of screen 28 [ft]  
Screen length 60 [in]  
Depth to Water 18.75 [ft]

**Pumping information:**

Final pumping rate 400 [mL/min]  
Flowcell volume 600 [mL]  
Calculated Sample Rate 90 [sec]  
Sample rate 90 [sec]  
Stabilized drawdown 0.1 [in]

**Low-Flow Sampling Stabilization Summary**

		Time	Temp [F]	pH [pH]	Cond [ $\mu$ S/cm @25C]	Turb [NTU]	RDO [mg/L]	ORP [mV]
<b>Stabilization Settings</b>				+/-0.2	+/-0.1	+/-1	+/-0.2	+/-20
				+/-3 %	+/-10 %	+/-10 %		
<b>Last 5 Readings</b>		10:39:09	61.47	6.91	805.13	29.38	-0.03	-10.76
		10:40:44	61.40	6.91	804.49	20.93	-0.03	-24.14
		10:42:16	61.31	6.91	803.01	19.87	-0.03	-35.55
		10:43:50	61.23	6.92	801.90	23.08	-0.04	-45.39
		10:45:22	61.21	6.92	796.23	22.95	-0.04	-53.90
<b>Variance in last 3 readings</b>		10:42:16	-0.09	0.00	-1.47	-1.06	0.00	-11.41
		10:43:50	-0.08	0.00	-1.11	3.21	0.00	-9.83
		10:45:22	-0.02	0.00	-5.68	-0.13	0.00	-8.51

**Notes:**

**Troll 9000**

11/28/11

**Low-Flow System****ISI Low-Flow Log****Project Information:**

Operator Name Mike Corbett  
Company Name URS Corporation  
Project Name Solutia WGK  
Site Name Quarterly Groundwater Sampling - CPA

**Pump Information:**

Pump Model/Type Proactive SS Monsoon  
Tubing Type LDPE  
Tubing Diameter 0.19 [in]  
Tubing Length 0 [ft]  
Pump placement from TOC 0 [ft]

**Well Information:**

Well Id CPA-A-MHU  
Well diameter 2 [in]  
Well total depth 62.2 [ft]  
Depth to top of screen 58 [ft]  
Screen length 50.4 [in]  
Depth to Water 18.46 [ft]

**Pumping information:**

Final pumping rate 400 [mL/min]  
Flowcell volume 600 [mL]  
Calculated Sample Rate 90 [sec]  
Sample rate 90 [sec]  
Stabilized drawdown 0 [in]

**Low-Flow Sampling Stabilization Summary**

		Time	Temp [F]	pH [pH]	Cond [µS/cm @25C]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings				+/-0.2	+/-0.1	+/-1	+/-0.2	+/-20
					+/-3 %	+/-10 %	+/-10 %	
Last 5 Readings	15:04:25	60.60	7.44	1468.07	45.47	-0.01	-110.69	
	15:05:58	60.49	7.44	1459.15	36.41	-0.01	-114.50	
	15:07:31	60.56	7.44	1457.03	34.90	-0.02	-118.34	
	15:09:03	60.64	7.44	1454.36	33.55	-0.02	-121.67	
	15:10:37	60.68	7.44	1450.06	35.50	-0.03	-124.79	
Variance in last 3 readings	15:07:31	0.07	0.00	-2.12	-1.51	-0.01	-3.85	
	15:09:03	0.08	0.00	-2.67	-1.35	0.00	-3.33	
	15:10:37	0.05	0.00	-4.30	1.94	0.00	-3.12	

**Notes:**

**Troll 9000**

11/28/11

**Low-Flow System****ISI Low-Flow Log****Project Information:**

Operator Name Mike Corbett  
Company Name URS Corporation  
Project Name Solutia WGK  
Site Name Quarterly Groundwater Sampling - CPA

**Pump Information:**

Pump Model/Type Proactive SS Monsoon  
Tubing Type LDPE  
Tubing Diameter 0.19 [in]  
Tubing Length 0 [ft]  
Pump placement from TOC 0 [ft]

**Well Information:**

Well Id CPA-A-DHU  
Well diameter 2 [in]  
Well total depth 113.3 [ft]  
Depth to top of screen 108 [ft]  
Screen length 63.6 [in]  
Depth to Water 18.75 [ft]

**Pumping information:**

Final pumping rate 325 [mL/min]  
Flowcell volume 600 [mL]  
Calculated Sample Rate 111 [sec]  
Sample rate 111 [sec]  
Stabilized drawdown 0.03 [in]

**Low-Flow Sampling Stabilization Summary**

		Time	Temp [F]	pH [pH]	Cond [µS/cm @25C]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings				+/-0.2	+/-0.1	+/-1	+/-0.2	+/-20
					+/-3 %	+/-10 %	+/-10 %	
Last 5 Readings	13:52:10	60.25	7.11	1527.03	14.16	0.07	-59.50	
	13:54:05	60.20	7.11	1544.67	11.03	0.05	-70.19	
	13:56:00	60.23	7.10	1559.76	9.05	0.04	-79.26	
	13:57:55	60.12	7.10	1576.51	7.12	0.03	-87.09	
	13:59:50	60.16	7.10	1587.21	6.31	0.03	-93.93	
Variance in last 3 readings	13:56:00	0.03	0.00	15.09	-1.98	-0.01	-9.07	
	13:57:55	-0.11	0.00	16.75	-1.93	-0.01	-7.83	
	13:59:50	0.04	0.00	10.70	-0.81	-0.01	-6.84	

**Notes:**

**Troll 9000**

12/01/11

**Low-Flow System****ISI Low-Flow Log****Project Information:**

Operator Name Mike Corbett  
Company Name URS Corporation  
Project Name Solutia WGK  
Site Name Quarterly Groundwater Sampling - CPA

**Pump Information:**

Pump Model/Type Proactive SS Monsoon  
Tubing Type LDPE  
Tubing Diameter 0.19 [in]  
Tubing Length 0 [ft]  
Pump placement from TOC 0 [ft]

**Well Information:**

Well Id CPA-B-SHU  
Well diameter 2 [in]  
Well total depth 25.4 [ft]  
Depth to top of screen 21 [ft]  
Screen length 52.8 [in]  
Depth to Water 11.24 [ft]

**Pumping information:**

Final pumping rate 300 [mL/min]  
Flowcell volume 600 [mL]  
Calculated Sample Rate 120 [sec]  
Sample rate 120 [sec]  
Stabilized drawdown 0.58 [in]

**Low-Flow Sampling Stabilization Summary**

		Time	Temp [F]	pH [pH]	Cond [μS/cm @25C]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings				+/-0.2	+/-0.1	+/-1	+/-0.2	+/-20
				+/-3 %	+/-10 %	+/-10 %		
Last 5 Readings	11:02:50	65.56	6.33	2377.97	19.18	-0.11	259.35	
	11:04:53	65.67	6.32	2376.84	17.17	-0.12	256.10	
	11:06:58	65.78	6.31	2376.25	15.13	-0.13	253.03	
	11:09:02	65.81	6.31	2375.99	12.84	-0.14	250.34	
	11:11:07	65.84	6.30	2383.10	15.34	-0.14	247.64	
Variance in last 3 readings	11:06:58	0.12	-0.01	-0.59	-2.04	-0.01	-3.08	
	11:09:02	0.03	-0.01	-0.26	-2.29	-0.01	-2.69	
	11:11:07	0.03	0.00	7.12	2.50	-0.01	-2.69	

**Notes:**

**Troll 9000**

12/01/11

**Low-Flow System****ISI Low-Flow Log****Project Information:**

Operator Name Mike Corbett  
Company Name URS Corporation  
Project Name Solutia WGK  
Site Name Quarterly Groundwater Sampling - CPA

**Pump Information:**

Pump Model/Type Proactive SS Monsoon  
Tubing Type LDPE  
Tubing Diameter 0.19 [in]  
Tubing Length 0 [ft]  
Pump placement from TOC 0 [ft]

**Well Information:**

Well Id CPA-B-MHU  
Well diameter 2 [in]  
Well total depth 55.5 [ft]  
Depth to top of screen 51 [ft]  
Screen length 54 [in]  
Depth to Water 12.74 [ft]

**Pumping information:**

Final pumping rate 400 [mL/min]  
Flowcell volume 600 [mL]  
Calculated Sample Rate 90 [sec]  
Sample rate 180 [sec]  
Stabilized drawdown 0 [in]

**Low-Flow Sampling Stabilization Summary**

		Time	Temp [F]	pH [pH]	Cond [ $\mu$ S/cm @25C]	Turb [NTU]	RDO [mg/L]	ORP [mV]
<b>Stabilization Settings</b>				+/-0.2	+/-0.1	+/-1	+/-0.2	+/-20
				+/-3 %	+/-10 %	+/-10 %		
<b>Last 5 Readings</b>		9:45:12	62.56	6.31	2257.69	51.56	-0.16	239.82
		9:48:18	62.68	6.30	2263.88	52.52	-0.17	235.93
		9:51:24	62.62	6.30	2272.99	31.58	-0.18	232.09
		9:54:31	62.62	6.30	2284.59	50.82	-0.18	228.88
		9:57:37	62.71	6.30	2290.40	31.45	-0.18	230.04
<b>Variance in last 3 readings</b>		9:51:24	-0.06	0.00	9.10	-20.94	-0.01	-3.84
		9:54:31	0.00	0.00	11.61	19.24	-0.01	-3.20
		9:57:37	0.09	-0.01	5.81	-19.37	0.00	1.16

**Notes:**

**Troll 9000**

11/30/11

**Low-Flow System****ISI Low-Flow Log****Project Information:**

Operator Name Mike Corbett  
Company Name URS Corporation  
Project Name Solutia WGK  
Site Name Quarterly Groundwater Sampling - CPA

**Pump Information:**

Pump Model/Type Proactive SS Monsoon  
Tubing Type LDPE  
Tubing Diameter 0.19 [in]  
Tubing Length 0 [ft]  
Pump placement from TOC 0 [ft]

**Well Information:**

Well Id CPA-B-DHU  
Well diameter 2 [in]  
Well total depth 106.5 [ft]  
Depth to top of screen 101 [ft]  
Screen length 66 [in]  
Depth to Water 11.95 [ft]

**Pumping information:**

Final pumping rate 400 [mL/min]  
Flowcell volume 600 [mL]  
Calculated Sample Rate 90 [sec]  
Sample rate 120 [sec]  
Stabilized drawdown 0 [in]

**Low-Flow Sampling Stabilization Summary**

		Time	Temp [F]	pH [pH]	Cond [μS/cm @25C]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings				+/-0.2	+/-0.1	+/-1	+/-0.2	+/-20
					+/-3 %	+/-10 %	+/-10 %	
Last 5 Readings	14:31:33	63.49	6.87	1542.09	40.16	-0.08	191.27	
	14:33:37	63.42	6.86	1542.91	32.31	-0.09	186.95	
	14:35:40	63.41	6.86	1544.78	26.18	-0.10	183.14	
	14:37:45	63.53	6.86	1541.30	24.04	-0.11	179.72	
	14:39:50	63.62	6.86	1539.09	21.83	-0.11	176.64	
Variance in last 3 readings	14:35:40	-0.01	0.00	1.87	-6.13	-0.01	-3.81	
	14:37:45	0.12	0.00	-3.49	-2.13	-0.01	-3.42	
	14:39:50	0.08	0.00	-2.21	-2.21	-0.01	-3.08	

**Notes:**

**Troll 9000**

11/30/11

**Low-Flow System****ISI Low-Flow Log****Project Information:**

Operator Name Mike Corbett  
Company Name URS Corporation  
Project Name Solutia WGK  
Site Name Quarterly Groundwater Sampling - CPA

**Pump Information:**

Pump Model/Type Proactive SS Monsoon  
Tubing Type LDPE  
Tubing Diameter 0.19 [in]  
Tubing Length 0 [ft]  
Pump placement from TOC 0 [ft]

**Well Information:**

Well Id CPA-C-SHU  
Well diameter 2 [in]  
Well total depth 25.8 [ft]  
Depth to top of screen 21 [ft]  
Screen length 57.6 [in]  
Depth to Water 11.24 [ft]

**Pumping information:**

Final pumping rate 300 [mL/min]  
Flowcell volume 600 [mL]  
Calculated Sample Rate 120 [sec]  
Sample rate 120 [sec]  
Stabilized drawdown 0.01 [in]

**Low-Flow Sampling Stabilization Summary**

		Time	Temp [F]	pH [pH]	Cond [µS/cm @25C]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings				+/-0.2	+/-0.1	+/-1	+/-0.2	+/-20
					+/-3 %	+/-10 %	+/-10 %	
Last 5 Readings	13:21:43	64.80	6.73	2071.80	29.16	-0.11	205.01	
	13:23:48	64.69	6.72	2069.81	26.51	-0.12	203.13	
	13:25:52	64.73	6.71	2076.51	39.94	-0.14	201.26	
	13:27:56	64.84	6.71	2089.23	41.56	-0.15	199.59	
	13:30:00	64.90	6.70	2102.10	23.66	-0.15	197.97	
Variance in last 3 readings	13:25:52	0.03	-0.01	6.70	13.43	-0.01	-1.88	
	13:27:56	0.11	-0.01	12.73	1.62	-0.01	-1.66	
	13:30:00	0.06	0.00	12.87	-17.90	0.00	-1.62	

**Notes:**

**Troll 9000**

11/30/11

**Low-Flow System****ISI Low-Flow Log****Project Information:**

Operator Name Mike Corbett  
Company Name URS Corporation  
Project Name Solutia WGK  
Site Name Quarterly Groundwater Sampling - CPA

**Pump Information:**

Pump Model/Type Proactive SS Monsoon  
Tubing Type LDPE  
Tubing Diameter 0.19 [in]  
Tubing Length 0 [ft]  
Pump placement from TOC 0 [ft]

**Well Information:**

Well Id CPA-C-MHU  
Well diameter 2 [in]  
Well total depth 55.5 [ft]  
Depth to top of screen 51 [ft]  
Screen length 54 [in]  
Depth to Water 12.6 [ft]

**Pumping information:**

Final pumping rate 400 [mL/min]  
Flowcell volume 600 [mL]  
Calculated Sample Rate 90 [sec]  
Sample rate 150 [sec]  
Stabilized drawdown 0 [in]

**Low-Flow Sampling Stabilization Summary**

		Time	Temp [F]	pH [pH]	Cond [µS/cm @25C]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings				+/-0.2	+/-0.1	+/-1	+/-0.2	+/-20
				+/-3 %	+/-10 %	+/-10 %		
Last 5 Readings	10:39:35	63.43	6.25	3397.97	47.60	-0.10	238.25	
	10:42:11	63.50	6.22	3350.34	72.40	-0.12	232.40	
	10:44:47	63.54	6.21	3303.36	28.89	-0.12	227.22	
	10:47:21	63.60	6.20	3278.14	54.24	-0.14	222.74	
	10:49:58	63.64	6.20	3270.05	13.88	-0.15	218.89	
Variance in last 3 readings	10:44:47	0.05	-0.01	-46.98	-43.51	0.00	-5.17	
	10:47:21	0.06	-0.01	-25.22	25.34	-0.02	-4.49	
	10:49:58	0.04	0.00	-8.09	-40.35	0.00	-3.85	

**Notes:**

**Troll 9000**

11/30/11

**Low-Flow System****ISI Low-Flow Log****Project Information:**

Operator Name Mike Corbett  
Company Name URS Corporation  
Project Name Solutia WGK  
Site Name Quarterly Groundwater Sampling - CPA

**Pump Information:**

Pump Model/Type Proactive SS Monsoon  
Tubing Type LDPE  
Tubing Diameter 0.19 [in]  
Tubing Length 0 [ft]  
Pump placement from TOC 0 [ft]

**Well Information:**

Well Id CPA-C-DHU  
Well diameter 2 [in]  
Well total depth 106 [ft]  
Depth to top of screen 101 [ft]  
Screen length 60 [in]  
Depth to Water 12.09 [ft]

**Pumping information:**

Final pumping rate 400 [mL/min]  
Flowcell volume 600 [mL]  
Calculated Sample Rate 90 [sec]  
Sample rate 150 [sec]  
Stabilized drawdown 0 [in]

**Low-Flow Sampling Stabilization Summary**

		Time	Temp [F]	pH [pH]	Cond [ $\mu$ S/cm @25C]	Turb [NTU]	RDO [mg/L]	ORP [mV]
<b>Stabilization Settings</b>				+/-0.2	+/-0.1	+/-1	+/-0.2	+/-20
				+/-3 %	+/-10 %	+/-10 %		
<b>Last 5 Readings</b>		9:35:12	62.95	6.86	1525.93	50.37	-0.14	189.29
		9:37:47	63.07	6.86	1525.98	48.84	-0.14	186.72
		9:40:23	63.04	6.86	1524.11	44.36	-0.15	184.46
		9:42:58	62.92	6.86	1525.85	44.59	-0.15	182.11
		9:45:33	63.06	6.87	1525.83	45.65	-0.15	180.06
<b>Variance in last 3 readings</b>		9:40:23	-0.04	0.00	-1.86	-4.48	-0.01	-2.26
		9:42:58	-0.11	0.00	1.74	0.23	-0.01	-2.35
		9:45:33	0.14	0.00	-0.02	1.06	0.00	-2.05

**Notes:**

**Troll 9000**

11/29/11

**Low-Flow System****ISI Low-Flow Log****Project Information:**

Operator Name Mike Corbett  
Company Name URS Corporation  
Project Name Solutia WGK  
Site Name Quarterly Groundwater Sampling - CPA

**Pump Information:**

Pump Model/Type Proactive SS Monsoon  
Tubing Type LDPE  
Tubing Diameter 0.19 [in]  
Tubing Length 0 [ft]  
Pump placement from TOC 0 [ft]

**Well Information:**

Well Id CPA-D-SHU  
Well diameter 2 [in]  
Well total depth 25.4 [ft]  
Depth to top of screen 21 [ft]  
Screen length 52.8 [in]  
Depth to Water 15.6 [ft]

**Pumping information:**

Final pumping rate 400 [mL/min]  
Flowcell volume 600 [mL]  
Calculated Sample Rate 90 [sec]  
Sample rate 90 [sec]  
Stabilized drawdown 0 [in]

**Low-Flow Sampling Stabilization Summary**

		Time	Temp [F]	pH [pH]	Cond [µS/cm @25C]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings				+/-0.2	+/-0.1	+/-1	+/-0.2	+/-20
				+/-3 %	+/-10 %	+/-10 %		
Last 5 Readings	10:06:55	62.39	4.11	4332.76	50.24	-0.09	213.21	
	10:08:28	62.42	4.10	4328.69	42.43	-0.09	212.91	
	10:10:01	62.28	4.09	4329.26	45.12	-0.09	212.66	
	10:11:34	62.20	4.09	4325.81	42.15	-0.10	212.32	
	10:13:08	62.25	4.09	4326.02	43.59	-0.10	212.02	
Variance in last 3 readings	10:10:01	-0.14	-0.01	0.57	2.69	0.00	-0.26	
	10:11:34	-0.08	0.00	-3.45	-2.98	0.00	-0.34	
	10:13:08	0.05	0.00	0.21	1.45	0.00	-0.30	

**Notes:**

**Troll 9000**

11/29/11

**Low-Flow System****ISI Low-Flow Log****Project Information:**

Operator Name Mike Corbett  
Company Name URS Corporation  
Project Name Solutia WGK  
Site Name Quarterly Groundwater Sampling - CPA

**Pump Information:**

Pump Model/Type Proactive SS Monsoon  
Tubing Type LDPE  
Tubing Diameter 0.19 [in]  
Tubing Length 0 [ft]  
Pump placement from TOC 0 [ft]

**Well Information:**

Well Id CPA-D-MHU  
Well diameter 2 [in]  
Well total depth 55.8 [ft]  
Depth to top of screen 51 [ft]  
Screen length 57.6 [in]  
Depth to Water 15.54 [ft]

**Pumping information:**

Final pumping rate 400 [mL/min]  
Flowcell volume 600 [mL]  
Calculated Sample Rate 90 [sec]  
Sample rate 90 [sec]  
Stabilized drawdown 0 [in]

**Low-Flow Sampling Stabilization Summary**

		Time	Temp [F]	pH [pH]	Cond [ $\mu$ S/cm @25C]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings				+/-0.2	+/-0.1	+/-1	+/-0.2	+/-20
				+/-3 %	+/-10 %	+/-10 %		
Last 5 Readings		11:22:49	62.75	6.37	2879.47	37.79	-0.08	-16.17
		11:24:22	62.67	6.37	2875.59	71.86	-0.09	-20.14
		11:25:55	62.59	6.38	2881.52	27.39	-0.10	-23.68
		11:27:28	62.72	6.39	2876.61	12.12	-0.10	-26.89
		11:29:01	62.66	6.39	2875.68	14.14	-0.11	-29.84
Variance in last 3 readings		11:25:55	-0.08	0.01	5.93	-44.47	-0.01	-3.55
		11:27:28	0.13	0.00	-4.91	-15.27	0.00	-3.20
		11:29:01	-0.06	0.00	-0.93	2.03	0.00	-2.95

**Notes:**

**Troll 9000**

11/29/11

**Low-Flow System****ISI Low-Flow Log****Project Information:**

Operator Name Mike Corbett  
Company Name URS Corporation  
Project Name Solutia WGK  
Site Name Quarterly Groundwater Sampling - CPA

**Pump Information:**

Pump Model/Type Proactive SS Monsoon  
Tubing Type LDPE  
Tubing Diameter 0.19 [in]  
Tubing Length 0 [ft]  
Pump placement from TOC 0 [ft]

**Well Information:**

Well Id CPA-D-DHU  
Well diameter 2 [in]  
Well total depth 105.9 [ft]  
Depth to top of screen 101 [ft]  
Screen length 58.8 [in]  
Depth to Water 15.74 [ft]

**Pumping information:**

Final pumping rate 400 [mL/min]  
Flowcell volume 600 [mL]  
Calculated Sample Rate 90 [sec]  
Sample rate 90 [sec]  
Stabilized drawdown 0 [in]

**Low-Flow Sampling Stabilization Summary**

		Time	Temp [F]	pH [pH]	Cond [μS/cm @25C]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings				+/-0.2	+/-0.1	+/-1	+/-0.2	+/-20
					+/-3 %	+/-10 %	+/-10 %	
Last 5 Readings	14:16:02	62.66	7.09	1599.00	53.60	-0.08	-98.76	
	14:17:36	62.68	7.09	1597.07	65.80	-0.08	-100.09	
	14:19:09	62.71	7.08	1597.16	60.59	-0.09	-101.59	
	14:20:42	62.71	7.08	1595.95	24.20	-0.09	-103.13	
	14:22:15	62.71	7.08	1595.91	27.12	-0.09	-103.81	
Variance in last 3 readings	14:19:09	0.03	0.00	0.09	-5.21	0.00	-1.50	
	14:20:42	0.00	0.00	-1.21	-36.40	0.00	-1.54	
	14:22:15	0.00	0.00	-0.04	2.92	0.00	-0.68	

**Notes:**

## **Appendix C**

### **Chains-of-Custody**

Savannah

5102 LaRoche Avenue

Savannah, GA 31404

phone 912.354.7858 fax 912.352.0165

## Chain of Custody Record

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

<b>Client Contact</b>		<b>Project Manager: Dave Palmer</b>		<b>Site Contact: Nathan McNurlen</b>		<b>Date: 11/28/11</b>		<b>COC No:</b>			
URS Corporation		Tel/Fax: (314) 743-4154		Lab Contact: Lidya Gulizia		Carrier: FedEx		1 of 1 COCs			
1001 Highlands Plaza Drive West, Suite 300		<b>Analysis Turnaround Time</b>		Filtered Sample VOCs by 8260 Total Fe/Mn by 6010B Alk/CO2 by 310.1 Chloride by 325.2/Sulfate by 375.4 Methane by RSK 175 Nitrate by 353.2 TOC by 415.1 Dissolved Fe/Mn by 6010B DOC by 415.1		Job No.		21562722.00001			
St. Louis, MO 63110		Calendar (C) or Work Days (W) <u>C</u>				21562703.00003-nc		SDG No.			
(314) 429-0100 Phone		TAT if different from Below <u>Standard</u>									
(314) 429-0462 FAX		<input checked="" type="checkbox"/> 2 weeks									
Project Name: 4Q11 Supplemental GW Sampling		<input type="checkbox"/> 1 week									
Site: Solutia WG Krummrich Facility		<input type="checkbox"/> 2 days									
PO#		<input type="checkbox"/> 1 day									
<b>Sample Identification</b>		<b>Sample Date</b>	<b>Sample Time</b>	<b>Sample Type</b>	<b>Matrix</b>	<b># of Cont.</b>			<b>Sample Specific Notes:</b>		
CPA-A-SHU -1111		11/28/11	1050	G	Water	12	3	1	1	1	
CPA-A-SMU -F(0.2)-1111			1050	G	Water	2	X			1 1	
CPA-A-DHU-1111			1405	G	Water	12	3	1	1	3 2 1	
CPA-A-DHU-F(0.2)-1111			1405	G	Water	2	X			1 1	
CPA-A-MHU-1111			1515	G	Water	12	3	1	1	3 2 1	
CPA-A-MHU-F(0.2)-1111		✓	1515	G	Water	2	X			1 1	
4Q11 SUPP Trip Blank # 1					Water	2	2				
<b>Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other</b>							2	1	4	1 1 1 3 1 2 4 2	
<b>Possible Hazard Identification</b>							<b>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</b>				
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown							<input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months				
<b>Special Instructions/QC Requirements &amp; Comments: Level 4 Data Package</b>							680-74713				
Relinquished by: <u>M. Clit</u>							Company: <b>URS</b>		Date/Time: <u>11/28/11 1700</u>		Received by: <u>Betha Daugherty</u>
Relinquished by:							Company:		Date/Time:		Received by:
Relinquished by:							Company:		Date/Time:		Received by:
Relinquished by:							Company:		Date/Time:		Received by:

Temp 4.8°C

Savannah

5102 LaRoche Avenue

Savannah, GA 31404

phone 912.354.7858 fax 912.352.0165

## Chain of Custody Record

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

<b>Client Contact</b>		<b>Project Manager: Dave Palmer</b>		<b>Site Contact: Nathan McNurlen</b>		<b>Date: 11/29/11</b>		<b>COC No:</b>										
URS Corporation		Tel/Fax: (314) 743-4154		Lab Contact: Lidya Gulizia		Carrier: FedEx		1 of 1 COCs										
1001 Highlands Plaza Drive West, Suite 300		<b>Analysis Turnaround Time</b>						Job No. 21562722-00001										
St. Louis, MO 63110		Calendar (C) or Work Days (W) <u>C</u>						21562703-00003-MC										
(314) 429-0100 Phone		TAT if different from Below <u>Standard</u>						SDG No.										
(314) 429-0462 FAX		<input checked="" type="checkbox"/> 2 weeks																
Project Name: 4Q11 CPA GW Sampling		<input type="checkbox"/> 1 week																
Site: Solutia WG Krummrich Facility		<input type="checkbox"/> 2 days																
PO#		<input type="checkbox"/> 1 day																
<b>Sample Identification</b>		<b>Sample Date</b>	<b>Sample Time</b>	<b>Sample Type</b>	<b>Matrix</b>	<b># of Cont.</b>	<b>Filtered Sample</b>	<b>VOCs by 8260</b>	<b>Total Fe/Mn by 6010B</b>	<b>Alk/CO2 by 310.1</b>	<b>Chloride by 325.2/Sulfate by 375.4</b>	<b>Methane by RSK 175</b>	<b>Nitrate by 353.2</b>	<b>TOC by 415.1</b>	<b>Dissolved Fe/Mn by 6010B</b>	<b>DOC by 415.1</b>	<b>Sample Specific Notes:</b>	
CPA-D-SHU-1111	11/29/11	1020	G	Water	12			3	1	1	1	3	2	1				
CPA-D-SHU-F(0.2)-1111		1020	G	Water	2	X									1	1		
CPA-D-MHU-1111		1140	G	Water	12			3	1	1	1	3	2	1				
CPA-D-MHU-F(0.2)-1111		1140	G	Water	2	X									1	1		
CPA-D-DHU-1111		1430	G	Water	12			3	1	1	1	3	2	1				
CPA-D-DHU-F(0.2)-1111		1430	G	Water	2	X									1	1		
CPA-D-SHU-1111-AD	✓	1020	G	Water	3													
4Q11 CPA Trip Blank # 2	11/29/11	—	—	Water	2			2										
<b>Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other</b>								2	1	4	1	1	1	3,1	2	4	2	
<b>Possible Hazard Identification</b>							<b>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</b>											
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/>							<input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months											
<b>Special Instructions/QC Requirements &amp; Comments: Level 4 Data Package</b>							680-74746											
							Temp 3.1°C											
Relinquished by: <i>mclt</i>		Company: URS		Date/Time: 11/29/11 1630		Received by: <i>X Shalado</i>		Company: TA		Date/Time: 11/29/11								
Relinquished by: <i>X Shalado</i>		Company: TA		Date/Time: 11/29/11 1700		Received by: <i>Beth A Daugherty</i>		Company: TASA		Date/Time: 11-30-11 0952								
Relinquished by:		Company:		Date/Time:		Received by:		Company:		Date/Time:								

Savannah

5102 LaRoche Avenue

Savannah, GA 31404

phone 912.354.7858 fax 912.352.0165

## Chain of Custody Record

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

<b>Client Contact</b>		<b>Project Manager: Dave Palmer</b>		<b>Site Contact: Nathan McNurlen</b>		<b>Date: 11/30/11</b>		<b>COC No:</b>														
URS Corporation		Tel/Fax: (314) 743-4154		Lab Contact: Lidya Gulizia		Carrier: FedEx		1 of 1 COCs														
1001 Highlands Plaza Drive West, Suite 300		<b>Analysis Turnaround Time</b>		Filtered Sample VOCs by 8260 Total Fe/Mn by 6010B Alk/CO2 by 310.1 Chloride by 325.2/Sulfate by 375.4 Methane by RSK 175 Nitrate by 353.2 TOC by 415.1 Dissolved Fe/Mn by 6010B DOC by 415.1		Job No.		21562722-00001														
St. Louis, MO 63110		Calendar (C) or Work Days (W) <u>C</u>				24562708-00003 AL		SDG No.														
(314) 429-0100 Phone		TAT if different from Below <u>Standard</u>																				
(314) 429-0462 FAX		<input checked="" type="checkbox"/> 2 weeks																				
Project Name: 4Q11 CPA GW Sampling		<input type="checkbox"/> 1 week																				
Site: Solutia WG Krummrich Facility		<input type="checkbox"/> 2 days																				
PO#		<input type="checkbox"/> 1 day																				
<b>Sample Identification</b>		<b>Sample Date</b>	<b>Sample Time</b>	<b>Sample Type</b>	<b>Matrix</b>	<b># of Cont.</b>														<b>Sample Specific Notes:</b>		
CPA-C-DHU -1111		11/30/11	0955	G	Water	12																
CPA-C-DHU -F(0.2)-1111				G	Water	2	X															
CPA-C-DHU-1111-MS				G	W	3																
CPA-C-DHU-1111-MSD				G	W	3																
CPA-C-MHU-1111			1100	G	W	12		3	1	1	1	3	2	1								
CPA-C-MHU-F(0.2)-1111			1100	G	W	2	X															
CPA-C-SHU-1111-EB			1250	G	W	3		3														
CPA-C-SHU-1111			1340	G	W	12		3	1	1	1	3	2	1								
CPA-C-SHU-F(0.2)-1111			1340	G	W	2	X															
CPA-B-DHU-1111			1445	G	W	12		3	1	1	1	3	2	1								
CPA-B-DHU-F(0.2)-1111			1445	G	W	2	X															
4Q11 CPA Trip Blank #3		11/30/11			Water	2		2														
<b>Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other</b>							2 1 4 1 1 1 3 1 2 4 2															
<b>Possible Hazard Identification</b>							<b>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</b>															
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown							<input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months															
<b>Special Instructions/QC Requirements &amp; Comments: Level 4 Data Package</b>																						
680-74799 28/3.0°C																						
Relinquished by: <i>[Signature]</i>		Company: URS		Date/Time: 11/30/11 1630		Received by: <i>[Signature]</i>		Company: TA		Date/Time: 11/30/11 1630												
Relinquished by: <i>[Signature]</i>		Company: TA		Date/Time: 11/30/11 1710		Received by:		Company:		Date/Time:												
Relinquished by:		Company:		Date/Time:		Received by: <i>[Signature]</i>		Company: TASN		Date/Time: 12/1/11 0952												

Savannah

5102 LaRoche Avenue

Savannah, GA 31404

phone 912.354.7858 fax 912.352.0165

## Chain of Custody Record

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

<b>Client Contact</b>		<b>Project Manager: Dave Palmer</b>		<b>Site Contact: Nathan McNurlen</b>		<b>Date: 12/1/11</b>		<b>COC No:</b>													
URS Corporation		Tel/Fax: (314) 743-4154		Lab Contact: Lidya Gulizia		Carrier: FedEx		1 of 1 COCs													
1001 Highlands Plaza Drive West, Suite 300		<b>Analysis Turnaround Time</b>		Filtered Sample VOCs by 8260 Total Fe/Mn by 6010B Al/CO2 by 310.1 Chloride by 325.2/Sulfate by 375.4 Methane by RSK 175 Nitrate by 353.2 TOC by 415.1 Dissolved Fe/Mn by 6010B DOC by 415.1		Job No.		21562722-00001													
St. Louis, MO 63110		Calendar (C) or Work Days (W) <u>C</u>				21562722-00002-ATC		SDG No.													
(314) 429-0100 Phone		TAT if different from Below <u>Standard</u>																			
(314) 429-0462 FAX		<input checked="" type="checkbox"/> 2 weeks																			
Project Name: 4Q11 CPA GW Sampling		<input type="checkbox"/> 1 week																			
Site: Solutia WG Krummrich Facility		<input type="checkbox"/> 2 days																			
PO#		<input type="checkbox"/> 1 day																			
<b>Sample Identification</b>		<b>Sample Date</b>	<b>Sample Time</b>	<b>Sample Type</b>	<b>Matrix</b>	<b># of Cont.</b>															
CPA-B-MHU -1111		12/1/11	1005	G	Water	12															
CPA-B-MHU -F(0.2)-1111			1005	G	Water	2	X														
CPA-B-SHU -1111			1120	G	W	12	3	1	1	1	3	2	1								
CPA-B-SHU -1111-AD			1120	G	W	3	3														
CPA-B-SHU-F(0.2)-1111		↓	1120	G	W	2	X														
4Q11 CPA Trip Blank # 4		12/1/11	—	—	Water	2	2														
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other							2	1	4	1	1	1	3	1	2	4	2				
<b>Possible Hazard Identification</b>							<b>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</b>														
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown							<input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months														
<b>Special Instructions/QC Requirements &amp; Comments: Level 4 Data Package</b>																					
680-74862 2.8°C																					
Relinquished by:		Company: URS		Date/Time: 12/1/11 1415		Received by:		Company: TA		Date/Time: 12/1/11 1415		Received by:		Company: TA SA		Date/Time: 12/2/11 0936					
Relinquished by:		Company: TA		Date/Time: 12/1/11 1730		Received by:		Company: TA SA		Date/Time: 12/2/11 0936		Received by:		Company: TA SA		Date/Time: 12/2/11 0936					
Relinquished by:		Company: TA		Date/Time: 12/2/11 0936		Received by:		Company: TA SA		Date/Time: 12/2/11 0936		Received by:		Company: TA SA		Date/Time: 12/2/11 0936					

**Appendix D**

**Quality Assurance Report**

# QUALITY ASSURANCE REPORT

Solutia Inc.  
W.G. Krummrich Facility  
Sauget, Illinois

## Chlorobenzene Processing Area Program 4<sup>th</sup> Quarter 2011 Data Report

*Prepared for*

Solutia Inc.  
575 Maryville Centre Drive  
St. Louis, MO 63141

January 2012



URS Corporation  
1001 Highland Plaza Drive West, Suite 300  
St. Louis, MO 63110  
(314) 429-0100  
**Project # 21562722.00001**

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## 1.0 INTRODUCTION

This Quality Assurance Report presents the findings of a review of analytical data for groundwater samples collected in November of 2011 at the Solutia W.G. Krummrich plant as part of the 4<sup>th</sup> Quarter 2011 Chlorobenzene Processing Area Program. The samples were collected by URS Corporation personnel and analyzed by TestAmerica Laboratories located in Savannah, Georgia using USEPA methods, Standard methods and USEPA SW-846 methodologies. Groundwater samples were tested for volatile organic compounds (VOCs), metals, dissolved gasses, and MNAs.

One hundred percent of the data were subjected to a data quality review (Level III validation). The Level III data reviews were performed in order to confirm that the analytical data provided by TestAmerica were acceptable in quality for their intended use.

A total of 16 groundwater samples (twelve investigative samples, two field duplicate pairs, one MS/MSD pair, and one equipment blank) were analyzed by TestAmerica. In addition, four trip blank sets were included in the coolers that contained groundwater samples for VOC analysis. One of the trip blank sets was not included by the laboratory during sample log-in; therefore a total of three trip blanks were analyzed for VOCs by USEPA SW-846 Method 8260B. These samples were analyzed as one Sample Delivery Group (SDG) KPS068 utilizing the following USEPA SW-846 Methods:

- Method 8260B for VOCs (Benzene, Chlorobenzene, 1,2-Dichlorobenzene, 1,3-Dichlorobenzene and 1,4-Dichlorobenzene)
- Method 6010B for total and dissolved iron and manganese

Samples were also analyzed for MNA parameters by the following methods:

- Method RSK-175 for Dissolved Gasses (Ethane, Ethylene, and Methane)
- USEPA Method 310.1 for Alkalinity and Free Carbon Dioxide
- USEPA Method 325.2 for Chloride
- USEPA Method 353.2 for Nitrogen, Nitrate
- USEPA Method 375.4 for Sulfate
- USEPA Method 415.1 for Total and Dissolved Organic Carbon

Samples were reviewed following procedures outlined in the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (USEPA 2008), USEPA Contract Laboratory Program National Functional Guidelines for Superfund Inorganic Data Review (USEPA 2010), and the Revised Long-Term Monitoring Program (LTMP) Work Plan

(Solutia 2009).

The above guidelines provided the criteria to review the data. Additional quantitative criteria are given in the analytical methods. Qualifiers assigned by the data reviewer have been applied to the laboratory report. The qualifiers indicate data that did not meet acceptance criteria and corrective actions were not successful or not performed. The various qualifiers are explained in **Tables 1** and **2** below:

**TABLE 1 Laboratory Data Qualifiers**

Lab Qualifier	Definition
U	Analyte was not detected at or above the reporting limit.
*	LCS, LCSD, MS, MSD, MD or surrogate exceeds the control limits.
E	Result exceeded the calibration range, secondary dilution required.
D	Surrogate or matrix spike recoveries were not obtained because the extract was diluted for analysis; also compounds analyzed at a dilution will be flagged with a D.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
X	Spike recovery exceeds upper or lower control limits.
F	MS, MSD or RPD exceeds upper or lower control limits.
P	The difference between the results of the two GC columns is greater than 40%
H	Sample was prepped or analyzed beyond the specified holding time.
B	Compound was found in the blank and sample.
4	MS, MSD: The analyte present in the original sample is 4 times greater than the matrix spike concentration; therefore, control limits are not applicable.

**TABLE 2 URS Data Qualifiers**

	Definition
U	The analyte was analyzed for but was not detected.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Based on the criteria outlined, it is recommended that the results reported for these analyses are accepted for their intended use. Acceptable levels of accuracy, precision, and representativeness (based on MS/MSD, LCS, surrogate compounds and field duplicate results) were achieved for this data set, except where noted in this report. In addition, analytical completeness, defined as the percentage of analytical results that are judged to be valid, including estimated detect/non-detect

(J/UJ) data was 100 percent, which meets the completeness goal of 95 percent.

The data review included evaluation of the following criteria:

#### **Organics**

- Receipt condition and sample holding times
- Laboratory method blanks, field equipment blanks and trip blank samples
- Surrogate spike recoveries
- Laboratory control sample (LCS) recoveries
- Matrix spike/matrix spike duplicate (MS/MSD) sample recoveries and relative percent difference (RPD) values
- Field duplicate results
- Results reported from dilutions
- Internal standard responses

#### **Inorganics/General chemistry**

- Receipt condition and sample holding times
- Laboratory method blank and field equipment blank samples
- LCS recoveries
- MS/MSD sample recoveries and matrix duplicate RPD values
- Field duplicate and laboratory duplicate results
- Results reported from dilutions

The following sections present the results of the data review.

### **2.0 RECEIPT CONDITION AND SAMPLE HOLDING TIMES**

Sample holding time requirements for the analyses performed are presented in the methods and/or in the data review guidelines. Review of the sample collection, extraction and analysis dates involved comparing the chain-of-custody and the laboratory data summary forms for accuracy, consistency, and holding time compliance.

The cooler receipt form indicated that insufficient sample volume was received for MS/MSD analysis; however, sample CPA-C-DHU-1111 contained sufficient sample volume to complete requested analysis. Samples collected in November 2011 were originally incorrectly labeled on the sample container label IDs as being collected in December 2011; data was reported using

the correct sample IDs. Trip blank nomenclature was revised to reflect samples were collected in the chlorobenzene processing area. The laboratory report was revised to correct a laboratory sample ID transcription error for sample CPA-A-DHU-1111.

Total organic carbon analyses for samples CPA-B-DHU-1111 was reanalyzed 16 days outside hold time for analysis (28 days) and total organic carbon in sample CPA-B-SHU-1111 was re-analyzed 11 days outside of hold time for analysis (28 days). The compounds qualified in the table below were reported from the re-extracted sample analyses. Professional judgment was used to not reject data.

Sample ID	Parameter	Analyte	Qualification
CPA-B-DHU-1111	General chemistry	Total organic carbon	J
CPA-B-SHU-1111	General chemistry	Total organic carbon	J

Additionally, samples CPA-B-MHU-1111 and CPA-B-SHU-1111 were diluted and re-analyzed to bring the highest level compounds within calibration range of the instrument. Results for the highest level compounds were reported from the re-analysis runs and the remaining compounds were reported from the original analyses.

### 3.0 TRIP BLANKS, LABORATORY METHOD BLANK AND EQUIPMENT BLANK SAMPLES

Trip blank samples are used to assess VOC cross contamination of samples during shipment to the laboratory. Trip blanks were submitted with each cooler shipped containing samples for VOC analyses for a total of four trip blank sample sets. One of the trip blank sets was not included by the laboratory during sample log-in; therefore a total of three trip blanks were analyzed for VOCs by USEPA SW-846 Method 8260B. Trip blank samples were non-detect.

Laboratory method blank samples evaluate the existence and magnitude of contamination problems resulting from laboratory activities. Laboratory method blank samples were analyzed at the method prescribed frequencies. Method blank samples were non-detect.

Equipment blank samples are used to assess the effectiveness of equipment decontamination procedures. Analytes detected in the equipment blank are summarized in the table below.

Blank ID	Parameter	Analyte	Concentration/Amount
CPA-C-SHU-1111-EB	VOCs	Benzene	15 ug/L
CPA-C-SHU-1111-EB	VOCs	Chlorobenzene	87 ug/L
CPA-C-SHU-1111-EB	VOCs	1,2-Dichlorobenzene	17 ug/L
CPA-C-SHU-1111-EB	VOCs	1,3-Dichlorobenzene	1.1 ug/L
CPA-C-SHU-1111-EB	VOCs	1,4-Dichlorobenzene	21 ug/L

Analytical data reported non-detect or at concentrations greater than five times (5X) the associated blank concentration did not require qualification. No qualification of data was required.

#### 4.0 SURROGATE SPIKE RECOVERIES

Surrogate compounds are used to evaluate overall laboratory performance for sample preparation efficiency on a per sample basis. Samples analyzed for VOCs were spiked with surrogate compounds during sample preparation. USEPA National Functional Guidelines for Superfund Organic Methods Data Review state how data is qualified, if surrogate spike recoveries do not meet acceptance criteria.

Groundwater surrogate recoveries were within evaluation criteria. Surrogates that were associated with quality control samples or were diluted out and not recovered did not require qualification. No qualification of data was required.

#### 5.0 LABORATORY CONTROL SAMPLE RECOVERIES

Laboratory control samples (LCS) are analyzed with each analytical batch to assess the accuracy of the analytical process. LCS recoveries were within evaluation criteria.

#### 6.0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) SAMPLES

MS/MSD samples are analyzed to assess the accuracy and precision of the analytical process on an analytical sample in a particular matrix. MS/MSD samples were required to be collected at a frequency of one per 20 investigative samples in accordance with the work plan. URS Corporation submitted one MS/MSD sample set for 12 investigative samples meeting the work plan frequency requirement.

Groundwater samples spiked and analyzed as MS/MSDs and their respective recoveries were within evaluation criteria with the exception summarized in the following table:

MS/MSD ID	Parameter	Analyte	MS/MSD Recovery (%)	RPD	MS/MSD/ RPD Criteria
CPA-C-DHU-1111	VOCs	Chlorobenzene	84/-42	83	70-130/30
CPA-C-DHU-1111	VOCs	1,2-Dichlorobenzene	97/68	28	70-130/30
CPA-C-DHU-1111	VOCs	1,4-Dichlorobenzene	95/41	48	70-130/30
CPA-C-DHU-1111	General chemistry	Chloride	48/48	0	85-115/30

Analytical data that required qualification based on MS/MSD data are included in the following table. USEPA National Functional Guidelines for Superfund Organic Methods Data Review indicates that organic data does not require qualification based on MS/MSD data alone. LCS/LCSD recoveries were within evaluation criteria. No qualification of VOC data was required.

---

Sample ID	Parameter	Analyte	Qualification
CPA-C-DHU-1111	General chemistry	Chloride	J

## 7.0 FIELD DUPLICATE RESULTS

Field duplicate results are used to evaluate precision of the entire data collection activity, including sampling, analysis and site heterogeneity. When results for both duplicate and sample values are greater than five times the practical quantitation limit (PQL), satisfactory precision is indicated by an RPD less than or equal to 25 percent for aqueous samples. Where one or both of the results of a field duplicate pair are reported at less than five times the PQL, satisfactory precision is indicated if the field duplicate results agree within 2 times the quantitation limit. Field duplicate results that do not meet these criteria may indicate unsatisfactory precision of the results.

Two pairs of field duplicate samples was collected for the twelve investigative groundwater samples. This satisfies the requirement in the work plan (one per 10 investigative samples or 10 percent). Groundwater field duplicate RPDs were within evaluation criteria.

## 8.0 INTERNAL STANDARD RESPONSES

Internal standard (IS) performance criteria ensure that the GC/MS sensitivity and response are stable during each analytical run. IS areas must be within -50 percent to +100 percent for VOCs.

The internal standards area responses for VOCs were verified for the data review. VOC IS responses met the criteria as described above for all groundwater samples. No qualification of data was required.

## 9.0 RESULTS REPORTED FROM DILUTIONS

VOCs, sulfate, chloride, nitrate, and total and dissolved organic carbon results for groundwater samples were diluted when high levels of target analytes were present. The diluted sample results for these analytes were reported for the associated samples.

**Appendix E**  
**Groundwater Analytical Results**  
**(with Data Review Reports)**

## 4Q 2011 CPA Data Review

Laboratory SDG: KPS068

Data Reviewer: Melissa Mansker

Peer Reviewer: Elizabeth Kunkel

Date Reviewed: 1/13/2012

Guidance: USEPA National Functional Guidelines for Superfund Organic Methods Data Review 2008. USEPA National Functional Guidelines for Superfund Inorganic Data Review 2010

Work Plan: Revised Long-Term Monitoring Program (LTMP) Work Plan (Solutia 2009)

Sample Identification	
CPA-A-SHU-1111	CPA-A-SHU-F(0.2)-1111
CPA-A-DHU-1111	CPA-A-DHU-F(0.2)-1111
CPA-A-MHU-1111	CPA-A-MHU-F(0.2)-1111
4Q11 CPA Trip Blank #1	CPA-D-SHU-1111
CPA-D-SHU-F(0.2)-1111	CPA-D-MHU-1111
CPA-D-MHU-F(0.2)-1111	CPA-D-DHU-1111
CPA-D-DHU-F(0.2)-1111	CPA-D-SHU-1111-AD
CPA-C-DHU-1111	CPA-C-DHU-F(0.2)-1111
CPA-C-MHU-1111	CPA-C-MHU-F(0.2)-1111
CPA-C-SHU-1111-EB	CPA-C-SHU-1111
CPA-C-SHU-F(0.2)-1111	CPA-B-DHU-1111
CPA-B-DHU-F(0.2)-1111	4Q11 CPA Trip Blank #3
CPA-B-MHU-1111	CPA-B-MHU-F(0.2)-1111
CPA-B-SHU-1111	CPA-B-SHU-1111-AD
CPA-B-SHU-F(0.2)-1111	4Q11 CPA Trip Blank #4

### 1.0 Data Package Completeness

*Were all items delivered as specified in the QAPP and COC as appropriate?*

No, 4Q11 CPA Trip Blank #2 listed on the COC was not included in sample log-in. Three other trip blanks for this SDG were logged in and analyzed for VOCs; the trip blanks analyzed were non-detect.

### 2.0 Laboratory Case Narrative \ Cooler Receipt Form

*Were problems noted in the laboratory case narrative or cooler receipt form?*

Yes, the laboratory case narrative indicated total organic carbon analyses for samples CPA-B-DHU-1111 and CPA-B-SHU-1111 were performed outside of hold time criteria. VOCs were detected in equipment blank CPA-C-SHU-1111-EB. VOC MS/MSD recoveries, VOC MS/MSD RPDs, and chloride MS/MSD recoveries in sample CPA-C-DHU-1111 were outside evaluation criteria. Samples were diluted due to high levels of target analytes. Samples CPA-B-MHU-1111 and CPA-B-SHU-1111 were diluted and re-

analyzed to bring the highest level compounds within calibration range of the instrument. Results for the highest level compounds were reported from the re-analysis runs and the remaining compounds were reported from the original analyses. These issues are addressed further in the appropriate sections below.

The cooler receipt form indicated that insufficient sample volume was received for MS/MSD analysis; however, sample CPA-C-DHU-1111 contained sufficient sample volume to complete requested analysis. Samples collected in November 2011 were originally incorrectly labeled on the sample container label IDs as being collected in December 2011; data was reported using the correct sample IDs. Trip blank nomenclature was revised to reflect samples were collected in the chlorobenzene processing area. The laboratory report was revised to correct a laboratory sample ID transcription error for sample CPA-A-DHU-1111.

### 3.0 Holding Times

*Were samples extracted/analyzed within applicable limits?*

No, total organic carbon in sample CPA-B-DHU-1111 was reanalyzed 16 days outside of hold time for analysis (28 days) and total organic carbon in sample CPA-B-SHU-1111 was reanalyzed 11 days outside of hold time for analysis (28 days). The compounds qualified in the table below were reported from the re-extracted sample analyses. Professional judgment was used to not reject data.

Sample ID	Parameter	Analyte	Qualification
CPA-B-DHU-1111	General chemistry	Total organic carbon	J
CPA-B-SHU-1111	General chemistry	Total organic carbon	J

### 4.0 Blank Contamination

*Were any analytes detected in the Method Blanks, Field Blanks or Trip Blanks?*

Yes

Blank ID	Parameter	Analyte	Concentration/Amount
CPA-C-SHU-1111-EB	VOCs	Benzene	15 ug/L
CPA-C-SHU-1111-EB	VOCs	Chlorobenzene	87 ug/L
CPA-C-SHU-1111-EB	VOCs	1,2-Dichlorobenzene	17 ug/L
CPA-C-SHU-1111-EB	VOCs	1,3-Dichlorobenzene	1.1 ug/L
CPA-C-SHU-1111-EB	VOCs	1,4-Dichlorobenzene	21 ug/L

Analytical data reported non-detect or at concentrations greater than five times (5X) the associated blank concentration did not require qualification. No qualification of data was required.

### 5.0 Laboratory Control Sample

*Were LCS recoveries within evaluation criteria?*

Yes

## 6.0 Surrogate Recoveries

*Were surrogate recoveries within evaluation criteria?*

Yes

## 7.0 Matrix Spike and Matrix Spike Duplicate Recoveries

*Were MS/MSD samples collected as part of this SDG?*

Yes, sample CPA-C-DHU-1111 was spiked and analyzed for VOCs and chloride. Although not requested for MS/MSD analysis, sample CPA-A-SHU-1111 was spiked and analyzed for nitrogen and total organic carbon.

*Were MS/MSD recoveries within evaluation criteria?*

No

MS/MSD ID	Parameter	Analyte	MS/MSD Recovery (%)	RPD	MS/MSD/ RPD Criteria
CPA-C-DHU-1111	VOCs	Chlorobenzene	84/-42	83	70-130/30
CPA-C-DHU-1111	VOCs	1,2-Dichlorobenzene	97/68	28	70-130/30
CPA-C-DHU-1111	VOCs	1,4-Dichlorobenzene	95/41	48	70-130/30
CPA-C-DHU-1111	General chemistry	Chloride	48/48	0	85-115/30

Analytical data that required qualification based on MS/MSD data are included in the table below. USEPA National Functional Guidelines for Organic Data Review indicates that organic data does not require qualification based on MS/MSD data alone. LCS/LCSD recoveries were within evaluation criteria. No qualification of VOC data was required.

Sample ID	Parameter	Analyte	Qualification
CPA-C-DHU-1111	General chemistry	Chloride	J

## 8.0 Internal Standard (IS) Recoveries

*Were internal standard area recoveries within evaluation criteria?*

Yes

## 9.0 Laboratory Duplicate Results

*Were laboratory duplicate samples collected as part of this SDG?*

Yes, samples CPA-A-MHU-1111 and CPA-B-DHU-1111 were duplicated and analyzed for alkalinity. Sample CPA-A-DMU-1111 was duplicated and analyzed for chloride. Sample CPA-D-DHU-1111 was duplicated and analyzed for nitrogen. Sample CPA-C-DHU-1111 was duplicated and analyzed for sulfate. Samples CPA-A-MHU-F(0.2)-1111 and CPA-C-DHU-F(0.2)-1111 was duplicated and analyzed for dissolved organic carbon.

*Were laboratory duplicate sample RPDs within criteria?*

Yes

---

**10.0 Field Duplicate Results**

*Were field duplicate samples collected as part of this SDG?*

Yes

Sample ID	Field Duplicate ID
CPA-D-SHU-1111	CPA-D-SHU-1111-AD
CPA-B-SHU-1111	CPA-B-SHU-1111-AD

*Were field duplicates within evaluation criteria?*

Yes

**10.0 Sample Dilutions**

*For samples that were diluted and nondetect, were undiluted results also reported?*

Not applicable; analytes were detected in samples that were diluted.

**11.0 Additional Qualifications**

*Were additional qualifications applied?*

No

## **SDG KPS068**

Results of Samples from Monitoring Wells:

CPA-A-SHU  
CPA-A-MHU  
CPA-A-DHU  
CPA-B-SHU  
CPA-B-MHU  
CPA-B-DHU  
CPA-C-SHU  
CPA-C-MHU  
CPA-C-DHU  
CPA-D-SHU  
CPA-D-MHU  
CPA-D-DHU

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.  
TestAmerica Savannah  
5102 LaRoche Avenue  
Savannah, GA 31404  
Tel: (912)354-7858

TestAmerica Job ID: 680-74713-1  
TestAmerica Sample Delivery Group: KPS068  
Client Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

For:  
Solutia Inc.  
575 Maryville Centre Dr.  
Saint Louis, Missouri 63141

Attn: Mr. Jerry Rinaldi

*Lidya Gulizia*

Authorized for release by:  
1/13/2012 2:33:52 PM

Lidya Gulizia  
Project Manager II  
lidya.gulizia@testamericainc.com

cc: Bob Billman

### LINKS

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The  
Expert

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[www.testamericainc.com](http://www.testamericainc.com)

*Reviewed on  
1/13/2012*

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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JAN 13 2012 

## Case Narrative

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

**Job ID: 680-74713-1**



**Laboratory: TestAmerica Savannah**

### Narrative

#### Job Narrative 680-74713-1

#### Receipt

All samples were received in good condition within temperature requirements.

#### GC/MS VOA

Method(s) 8260B: The matrix spike duplicate (MSD) recoveries for batch 223702 were outside control limits. The associated laboratory control sample (LCS) recovery met acceptance criteria.

Method(s) 8260B: The matrix spike / matrix spike duplicate (MS/MSD) precision for batch 223702 was outside control limits. The associated laboratory control sample / laboratory control sample duplicate (LCS/LCSD) precision met acceptance criteria.

Method(s) 8260B: The equipment blank sample CPA-C-SHU-1111-EB (680-74799-5) contained detections for several target compounds above the reporting limits. The sample was reanalyzed and reanalysis results confirmed the original data.

No other analytical or quality issues were noted.

#### GC VOA

Method(s) RSK-175: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for batch 223685 were outside control limits for Methane. The associated laboratory control sample (LCS) recovery met acceptance criteria.

Method(s) RSK-175: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for batch 223650 were outside control limits. The associated laboratory control sample (LCS) recovery met acceptance criteria.

Method(s) RSK-175: Manual integration was performed on the following sample(s): (MB 680-222417/4).

No other analytical or quality issues were noted.

#### Metals

No analytical or quality issues were noted.

#### General Chemistry

Method(s) 325.2: The matrix spike duplicate (MSD) recoveries for batch 222364 were outside control limits. The associated laboratory control sample (LCS) recovery met acceptance criteria.

Method(s) 325.2: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for batch 224230 were outside control limits. The associated laboratory control sample (LCS) recovery met acceptance criteria.

Method(s) 415.1: Reanalysis of the following sample(s) for Total Organic Carbon was performed outside of the analytical holding time due to poor correlation to the Dissolved Organic Carbon analysis: SHU-1111 (680-74862-3) and CPA-B-DHU-1111 (680-74799-8).

No other analytical or quality issues were noted.

#### Comments

No additional comments.

JAN 13 2012 


## Sample Summary

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-74713-1	CPA-A-SHU-1111 ✓	Water	11/28/11 10:50	11/29/11 12:12
680-74713-2	CPA-A-SHU-F(0.2)-1111 ✓	Water	11/28/11 10:50	11/29/11 12:12
680-74713-3	CPA-A-DMU-1111 ✓	Water	11/28/11 14:05	11/29/11 12:12
680-74713-4	CPA-A-DHU-F(0.2)-1111 ✓	Water	11/28/11 14:05	11/29/11 12:12
680-74713-5	CPA-A-MHU-1111 ✓	Water	11/28/11 15:15	11/29/11 12:12
680-74713-6	CPA-A-MHU-F(0.2)-1111 ✓	Water	11/28/11 15:15	11/29/11 12:12
680-74713-7	4Q11SUPP Trip Blank #1 ✓	Water	11/28/11 00:00	11/29/11 12:12
680-74746-1	CPA-D-SHU-1111 ✓	Water	11/29/11 10:20	11/30/11 09:52
680-74746-2	CPA-D-SHU-F(0.2)-1111 ✓	Water	11/29/11 10:20	11/30/11 09:52
680-74746-3	CPA-D-MHU-1111 ✓	Water	11/29/11 11:40	11/30/11 09:52
680-74746-4	CPA-D-MHU-F(0.2)-1111 ✓	Water	11/29/11 11:40	11/30/11 09:52
680-74746-5	CPA-D-DHU-1111 ✓	Water	11/29/11 14:30	11/30/11 09:52
680-74746-6	CPA-D-DHU-F(0.2)-1111 ✓	Water	11/29/11 14:30	11/30/11 09:52
680-74746-7	CPA-D-SHU-1111-AD ✓	Water	11/29/11 10:20	11/30/11 09:52
680-74799-1	CPA-C-DHU-1111 ✓	Water	11/30/11 09:55	12/01/11 09:52
680-74799-2	CPA-C-DHU-F(0.2)-1111 ✓	Water	11/30/11 09:55	12/01/11 09:52
680-74799-3	CPA-C-MHU-1111 ✓	Water	11/30/11 11:00	12/01/11 09:52
680-74799-4	CPA-C-MHU-F(0.2)-1111 ✓	Water	11/30/11 11:00	12/01/11 09:52
680-74799-5	CPA-C-SHU-1111-EB ✓	Water	11/30/11 12:50	12/01/11 09:52
680-74799-6	CPA-C-SHU-1111 ✓	Water	11/30/11 13:40	12/01/11 09:52
680-74799-7	CPA-C-SHU-F(0.2)-1111 ✓	Water	11/30/11 13:40	12/01/11 09:52
680-74799-8	CPA-B-DHU-1111 ✓	Water	11/30/11 14:45	12/01/11 09:52
680-74799-9	CPA-B-DHU-F(0.2)-1111 ✓	Water	11/30/11 14:45	12/01/11 09:52
680-74799-10	4Q11 CPA Trip Blank #3 ✓	Water	11/30/11 00:00	12/01/11 09:52
680-74862-1	CPA-B-MHU-1111 ✓	Water	12/01/11 10:05	12/02/11 09:36
680-74862-2	CPA-B-MHU-F(0.2)-1111 ✓	Water	12/01/11 10:05	12/02/11 09:36
680-74862-3	CPA-B-SHU-1111 ✓	Water	12/01/11 11:20	12/02/11 09:36
680-74862-4	CPA-B-SHU-1111-AD ✓	Water	12/01/11 11:20	12/02/11 09:36
680-74862-5	CPA-B-SHU-F(0.2)-1111 ✓	Water	12/01/11 11:20	12/02/11 09:36
680-74862-6	4Q11 CPA Trip Blank #4 ✓	Water	12/01/11 00:00	12/02/11 09:36

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## Method Summary

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL SAV
RSK-175	Dissolved Gases (GC)	RSK	TAL SAV
6010B	Metals (ICP)	SW846	TAL SAV
310.1	Alkalinity	MCAWW	TAL SAV
325.2	Chloride	MCAWW	TAL SAV
353.2	Nitrogen, Nitrate-Nitrite	MCAWW	TAL SAV
375.4	Sulfate	MCAWW	TAL SAV
415.1	TOC	MCAWW	TAL SAV
415.1	DOC	MCAWW	TAL SAV

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### Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.


RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique, RSKSOP-175,

Rev. 0, 8/11/94, USEPA Research Lab

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

### Laboratory References:

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

JAN 13 2012 

## Definitions/Glossary

Client: Solutia Inc.  
Project/Site: WGG GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

### Qualifiers

#### GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
F	MS or MSD exceeds the control limits
F	RPD of the MS and MSD exceeds the control limits
E	Result exceeded calibration range.
D	Surrogate or matrix spike recoveries were not obtained because the extract was diluted for analysis; also compounds analyzed at a dilution may be flagged with a D.

#### GC VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

#### Metals

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

#### General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
F	MS or MSD exceeds the control limits
H	Sample was prepped or analyzed beyond the specified holding time

### Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☆	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

JAN 13 2012



TestAmerica Savannah

## Detection Summary

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

**Client Sample ID: CPA-A-SHU-1111**

**Lab Sample ID: 680-74713-1**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	820		100		ug/L	100		8260B	Total/NA
Chlorobenzene	8200		100		ug/L	100		8260B	Total/NA
1,2-Dichlorobenzene	240		100		ug/L	100		8260B	Total/NA
1,4-Dichlorobenzene	3300		100		ug/L	100		8260B	Total/NA
Ethane	5.0		1.1		ug/L	1		RSK-175	Total/NA
Methane	5700		0.58		ug/L	1		RSK-175	Total/NA
Iron	11		0.050		mg/L	1		6010B	Total Recovera
Manganese	0.41		0.010		mg/L	1		6010B	Total Recovera
Chloride	27		1.0		mg/L	1		325.2	Total/NA
Total Organic Carbon	31		1.0		mg/L	1		415.1	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	350		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	40		5.0		mg/L	1		310.1	Total/NA

**Client Sample ID: CPA-A-SHU-F(0.2)-1111**

**Lab Sample ID: 680-74713-2**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	11		0.050		mg/L	1		6010B	Dissolved
Manganese, Dissolved	0.40		0.010		mg/L	1		6010B	Dissolved
Dissolved Organic Carbon	21		1.0		mg/L	1		415.1	Dissolved

**Client Sample ID: CPA-A-DMU-1111**

**Lab Sample ID: 680-74713-3**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	2.9		2.0		ug/L	2		8260B	Total/NA
Chlorobenzene	220		2.0		ug/L	2		8260B	Total/NA
1,2-Dichlorobenzene	200		2.0		ug/L	2		8260B	Total/NA
1,3-Dichlorobenzene	20		2.0		ug/L	2		8260B	Total/NA
1,4-Dichlorobenzene	180		2.0		ug/L	2		8260B	Total/NA
Ethane	1.7		1.1		ug/L	1		RSK-175	Total/NA
Methane	110		0.58		ug/L	1		RSK-175	Total/NA
Iron	7.2		0.050		mg/L	1		6010B	Total Recovera
Manganese	0.36		0.010		mg/L	1		6010B	Total Recovera
Chloride	54		1.0		mg/L	1		325.2	Total/NA
Sulfate	89		25		mg/L	5		375.4	Total/NA
Total Organic Carbon	6.6		1.0		mg/L	1		415.1	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	540		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	29		5.0		mg/L	1		310.1	Total/NA

**Client Sample ID: CPA-A-DHU-F(0.2)-1111**

**Lab Sample ID: 680-74713-4**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	7.3		0.050		mg/L	1		6010B	Dissolved
Manganese, Dissolved	0.37		0.010		mg/L	1		6010B	Dissolved
Dissolved Organic Carbon	6.3		1.0		mg/L	1		415.1	Dissolved

**Client Sample ID: CPA-A-MHU-1111**

**Lab Sample ID: 680-74713-5**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	360		5.0		ug/L	5		8260B	Total/NA
Chlorobenzene	530		5.0		ug/L	5		8260B	Total/NA
1,4-Dichlorobenzene	6.7		5.0		ug/L	5		8260B	Total/NA

## Detection Summary

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

### Client Sample ID: CPA-A-MHU-1111 (Continued)

Lab Sample ID: 680-74713-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Ethane	12		1.1		ug/L	1		RSK-175	Total/NA
Methane	11000		0.58		ug/L	1		RSK-175	Total/NA
Iron	1.1		0.050		mg/L	1		6010B	Total Recovera
Manganese	0.31		0.010		mg/L	1		6010B	Total Recovera
Chloride	26		1.0		mg/L	1		325.2	Total/NA
Total Organic Carbon	7.0		1.0		mg/L	1		415.1	Total/NA
Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	730		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	20		5.0		mg/L	1		310.1	Total/NA

### Client Sample ID: CPA-A-MHU-F(0.2)-1111

Lab Sample ID: 680-74713-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	0.97		0.050		mg/L	1		6010B	Dissolved
Manganese, Dissolved	0.31		0.010		mg/L	1		6010B	Dissolved
Dissolved Organic Carbon	7.0		1.0		mg/L	1		415.1	Dissolved

### Client Sample ID: 4Q11SUPP Trip Blank #1

Lab Sample ID: 680-74713-7

No Detections

### Client Sample ID: CPA-D-SHU-1111

Lab Sample ID: 680-74746-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	8100		2000		ug/L	2000		8260B	Total/NA
Chlorobenzene	180000		2000		ug/L	2000		8260B	Total/NA
Methane	9.0		0.58		ug/L	1		RSK-175	Total/NA
Iron	130		0.050		mg/L	1		6010B	Total Recovera
Manganese	3.8		0.010		mg/L	1		6010B	Total Recovera
Chloride	300		5.0		mg/L	5		325.2	Total/NA
Nitrate as N	19		2.5		mg/L	50		353.2	Total/NA
Sulfate	2300		500		mg/L	100		375.4	Total/NA
Total Organic Carbon	150		10		mg/L	10		415.1	Total/NA

### Client Sample ID: CPA-D-SHU-F(0.2)-1111

Lab Sample ID: 680-74746-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	130		0.050		mg/L	1		6010B	Dissolved
Manganese, Dissolved	3.8		0.010		mg/L	1		6010B	Dissolved
Dissolved Organic Carbon	130		5.0		mg/L	5		415.1	Dissolved

### Client Sample ID: CPA-D-MHU-1111

Lab Sample ID: 680-74746-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	21000		1000		ug/L	1000		8260B	Total/NA
Chlorobenzene	75000		1000		ug/L	1000		8260B	Total/NA
1,2-Dichlorobenzene	12000		1000		ug/L	1000		8260B	Total/NA
1,4-Dichlorobenzene	12000		1000		ug/L	1000		8260B	Total/NA
Ethane	15		1.1		ug/L	1		RSK-175	Total/NA
Methane	11000		0.58		ug/L	1		RSK-175	Total/NA
Iron	1.6		0.050		mg/L	1		6010B	Total Recovera
Manganese	2.4		0.010		mg/L	1		6010B	Total Recovera
Chloride	450		5.0		mg/L	5		325.2	Total/NA

## Detection Summary

Client: Solutia Inc.  
Project/Site: W GK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

### Client Sample ID: CPA-D-MHU-1111 (Continued)

Lab Sample ID: 680-74746-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	200		50		mg/L	10		375.4	Total/NA
Total Organic Carbon	120		10		mg/L	10		415.1	Total/NA
Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	590		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	110		5.0		mg/L	1		310.1	Total/NA

### Client Sample ID: CPA-D-MHU-F(0.2)-1111

Lab Sample ID: 680-74746-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	1.6		0.050		mg/L	1		6010B	Dissolved
Manganese, Dissolved	2.4		0.010		mg/L	1		6010B	Dissolved
Dissolved Organic Carbon	120		5.0		mg/L	5		415.1	Dissolved

### Client Sample ID: CPA-D-DHU-1111

Lab Sample ID: 680-74746-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	430		200		ug/L	200		8260B	Total/NA
Chlorobenzene	17000		200		ug/L	200		8260B	Total/NA
1,2-Dichlorobenzene	2500		200		ug/L	200		8260B	Total/NA
1,3-Dichlorobenzene	510		200		ug/L	200		8260B	Total/NA
1,4-Dichlorobenzene	3300		200		ug/L	200		8260B	Total/NA
Ethane	19		1.1		ug/L	1		RSK-175	Total/NA
Methane	2300		0.58		ug/L	1		RSK-175	Total/NA
Iron	0.33		0.050		mg/L	1		6010B	Total Recovera
Manganese	0.33		0.010		mg/L	1		6010B	Total Recovera
Chloride	81		1.0		mg/L	1		325.2	Total/NA
Nitrate as N	0.076		0.050		mg/L	1		353.2	Total/NA
Total Organic Carbon	26		1.0		mg/L	1		415.1	Total/NA
Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	620		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	22		5.0		mg/L	1		310.1	Total/NA

### Client Sample ID: CPA-D-DHU-F(0.2)-1111

Lab Sample ID: 680-74746-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	0.28		0.050		mg/L	1		6010B	Dissolved
Manganese, Dissolved	0.33		0.010		mg/L	1		6010B	Dissolved
Dissolved Organic Carbon	24		1.0		mg/L	1		415.1	Dissolved

### Client Sample ID: CPA-D-SHU-1111-AD

Lab Sample ID: 680-74746-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	7800		1000		ug/L	1000		8260B	Total/NA
Chlorobenzene	180000		1000		ug/L	1000		8260B	Total/NA

### Client Sample ID: CPA-C-DHU-1111

Lab Sample ID: 680-74799-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	2800		500		ug/L	500		8260B	Total/NA
Chlorobenzene	33000		500		ug/L	500		8260B	Total/NA
1,2-Dichlorobenzene	5000		500		ug/L	500		8260B	Total/NA
1,3-Dichlorobenzene	520		500		ug/L	500		8260B	Total/NA
1,4-Dichlorobenzene	11000		500		ug/L	500		8260B	Total/NA

## Detection Summary

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

### Client Sample ID: CPA-C-DHU-1111 (Continued)

Lab Sample ID: 680-74799-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Ethane	7.1		1.1		ug/L	1		RSK-175	Total/NA
Methane	400		0.58		ug/L	1		RSK-175	Total/NA
Iron	2.4		0.050		mg/L	1		6010B	Total Recovera
Manganese	0.47		0.010		mg/L	1		6010B	Total Recovera
Chloride	69	J	2.0		mg/L	2		325.2	Total/NA
Sulfate	66		25		mg/L	5		375.4	Total/NA
Total Organic Carbon	23		10		mg/L	10		415.1	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	550		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	22		5.0		mg/L	1		310.1	Total/NA

### Client Sample ID: CPA-C-DHU-F(0.2)1111

Lab Sample ID: 680-74799-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	2.3		0.050		mg/L	1		6010B	Dissolved
Manganese, Dissolved	0.46		0.010		mg/L	1		6010B	Dissolved
Dissolved Organic Carbon	23		1.0		mg/L	1		415.1	Dissolved

### Client Sample ID: CPA-C-MHU-1111

Lab Sample ID: 680-74799-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	84000		2500		ug/L	2500		8260B	Total/NA
Chlorobenzene	140000		2500		ug/L	2500		8260B	Total/NA
1,2-Dichlorobenzene	16000		2500		ug/L	2500		8260B	Total/NA
1,4-Dichlorobenzene	17000		2500		ug/L	2500		8260B	Total/NA
Ethane	6.1		1.1		ug/L	1		RSK-175	Total/NA
Ethylene	18		1.0		ug/L	1		RSK-175	Total/NA
Methane	14000		0.58		ug/L	1		RSK-175	Total/NA
Iron	46		0.050		mg/L	1		6010B	Total Recovera
Manganese	2.8		0.010		mg/L	1		6010B	Total Recovera
Chloride	680		10		mg/L	10		325.2	Total/NA
Sulfate	110		25		mg/L	5		375.4	Total/NA
Total Organic Carbon	45		10		mg/L	10		415.1	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	460		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	160		5.0		mg/L	1		310.1	Total/NA

### Client Sample ID: CPA-C-MHU-F(0.2)-1111

Lab Sample ID: 680-74799-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	45		0.050		mg/L	1		6010B	Dissolved
Manganese, Dissolved	2.7		0.010		mg/L	1		6010B	Dissolved
Dissolved Organic Carbon	43		1.0		mg/L	1		415.1	Dissolved

### Client Sample ID: CPA-C-SHU-1111-EB

Lab Sample ID: 680-74799-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	15		1.0		ug/L	1		8260B	Total/NA
Chlorobenzene	87		1.0		ug/L	1		8260B	Total/NA
1,2-Dichlorobenzene	17		1.0		ug/L	1		8260B	Total/NA
1,3-Dichlorobenzene	1.1		1.0		ug/L	1		8260B	Total/NA
1,4-Dichlorobenzene	21		1.0		ug/L	1		8260B	Total/NA

## Detection Summary

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

**Client Sample ID: CPA-C-SHU-1111**

**Lab Sample ID: 680-74799-6**

Analyte	Result	Qualifier	RL	MDL	Unit	Oil Fac	D	Method	Prep Type
Benzene	1600		200		ug/L	200		8260B	Total/NA
Chlorobenzene	6700		200		ug/L	200		8260B	Total/NA
1,2-Dichlorobenzene	11000		200		ug/L	200		8280B	Total/NA
1,3-Dichlorobenzene	630		200		ug/L	200		8260B	Total/NA
1,4-Dichlorobenzene	4100		200		ug/L	200		8260B	Total/NA
Methane	410		0.58		ug/L	1		RSK-175	Total/NA
Iron	0.33		0.050		mg/L	1		6010B	Total Recovera
Manganese	2.0		0.010		mg/L	1		6010B	Total Recovera
Chloride	300		10		mg/L	10		325.2	Total/NA
Nitrate as N	5.2		0.25		mg/L	5		353.2	Total/NA
Sulfate	180		50		mg/L	10		375.4	Total/NA
Total Organic Carbon	310		10		mg/L	10		415.1	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	450		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	32		5.0		mg/L	1		310.1	Total/NA

**Client Sample ID: CPA-C-SHU-F(0.2)-1111**

**Lab Sample ID: 680-74799-7**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	0.18		0.050		mg/L	1		6010B	Dissolved
Manganese, Dissolved	2.0		0.010		mg/L	1		6010B	Dissolved
Dissolved Organic Carbon	320		10		mg/L	10		415.1	Dissolved

**Client Sample ID: CPA-B-DHU-1111**

**Lab Sample ID: 680-74799-8**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chlorobenzene	41000		500		ug/L	500		8260B	Total/NA
1,2-Dichlorobenzene	23000		500		ug/L	500		8260B	Total/NA
1,3-Dichlorobenzene	1900		500		ug/L	500		8260B	Total/NA
1,4-Dichlorobenzene	33000		500		ug/L	500		8260B	Total/NA
Ethane	2.4		1.1		ug/L	1		RSK-175	Total/NA
Methane	130		0.58		ug/L	1		RSK-175	Total/NA
Iron	9.1		0.050		mg/L	1		6010B	Total Recovera
Manganese	0.51		0.010		mg/L	1		6010B	Total Recovera
Chloride	66		1.0		mg/L	1		325.2	Total/NA
Sulfate	74		25		mg/L	5		375.4	Total/NA
Total Organic Carbon	8.5	H J	1.0		mg/L	1		415.1	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	510		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	26		5.0		mg/L	1		310.1	Total/NA

**Client Sample ID: CPA-B-DHU-F(0.2)-1111**

**Lab Sample ID: 680-74799-9**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	8.7		0.050		mg/L	1		6010B	Dissolved
Manganese, Dissolved	0.49		0.010		mg/L	1		6010B	Dissolved
Dissolved Organic Carbon	8.7		1.0		mg/L	1		415.1	Dissolved

**Client Sample ID: 4Q11 CPA Trip Blank #3**

**Lab Sample ID: 680-74799-10**

No Detections

## Detection Summary

Client: Solutia Inc.

TestAmerica Job ID: 680-74713-1

Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

SDG: KPS068

*\* Do not use this data. Use all other data.*

Client Sample ID: CPA-B-MHU-1111

Lab Sample ID: 680-74862-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
<del>Benzene</del>	<del>100000</del>	<del>E</del>	<del>200</del>		<del>ug/L</del>	<del>200</del>		<del>8260B</del>	<del>Total/NA</del>
<del>Chlorobenzene</del>	<del>70000</del>	<del>E</del>	<del>200</del>		<del>ug/L</del>	<del>200</del>		<del>8260B</del>	<del>Total/NA</del>
1,4-Dichlorobenzene	260		200		ug/L	200		8260B	Total/NA
Benzene - DL	110000	D	1000		ug/L	1000		8260B	Total/NA
Chlorobenzene - DL	77000	D	1000		ug/L	1000		8260B	Total/NA
Ethane	140		1.1		ug/L	1		RSK-175	Total/NA
Ethylene	7.0		1.0		ug/L	1		RSK-175	Total/NA
Methane	10000		0.58		ug/L	1		RSK-175	Total/NA
Iron	39		0.050		mg/L	1		6010B	Total Recovera
Manganese	2.3		0.010		mg/L	1		6010B	Total Recovera
Chloride	350		10		mg/L	10		325.2	Total/NA
Total Organic Carbon	23		10		mg/L	10		415.1	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	540		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	150		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: CPA-B-MHU-F(0.2)-1111

Lab Sample ID: 680-74862-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	40		0.050		mg/L	1		6010B	Dissolved
Manganese, Dissolved	2.4		0.010		mg/L	1		6010B	Dissolved
Dissolved Organic Carbon	24		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: CPA-B-SHU-1111

Lab Sample ID: 680-74862-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chlorobenzene	41000		500		ug/L	500		8260B	Total/NA
Methane	50		0.58		ug/L	1		RSK-175	Total/NA
Iron	38		0.050		mg/L	1		6010B	Total Recovera
Manganese	2.2		0.010		mg/L	1		6010B	Total Recovera
Chloride	300		10		mg/L	10		325.2	Total/NA
Sulfate	90		25		mg/L	5		375.4	Total/NA
Total Organic Carbon	3.7	H J	1.0		mg/L	1		415.1	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	420		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	110		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: CPA-B-SHU-1111-AD

Lab Sample ID: 680-74862-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
<del>Chlorobenzene</del>	<del>40000</del>	<del>E</del>	<del>200</del>		<del>ug/L</del>	<del>200</del>		<del>8260B</del>	<del>Total/NA</del>
Chlorobenzene - DL	43000	D	1000		ug/L	1000		8260B	Total/NA

Client Sample ID: CPA-B-SHU-F(0.2)-1111

Lab Sample ID: 680-74862-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	38		0.050		mg/L	1		6010B	Dissolved
Manganese, Dissolved	2.2		0.010		mg/L	1		6010B	Dissolved
Dissolved Organic Carbon	3.6		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: 4Q11 CPA Trip Blank #4

Lab Sample ID: 680-74862-6

No Detections

## Client Sample Results

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

**Client Sample ID: CPA-A-SHU-1111**

**Lab Sample ID: 680-74713-1**

Date Collected: 11/28/11 10:50

Matrix: Water

Date Received: 11/29/11 12:12

### Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	820		100		ug/L			12/06/11 20:14	100
Chlorobenzene	8200		100		ug/L			12/06/11 20:14	100
1,2-Dichlorobenzene	240		100		ug/L			12/06/11 20:14	100
1,3-Dichlorobenzene	100	U	100		ug/L			12/06/11 20:14	100
1,4-Dichlorobenzene	3300		100		ug/L			12/06/11 20:14	100

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	101		70 - 130		12/06/11 20:14	100
Dibromofluoromethane	92		70 - 130		12/06/11 20:14	100
Toluene-d8 (Sur)	102		70 - 130		12/06/11 20:14	100

### Method: RSK-175 - Dissolved Gases (GC)


Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	5.0		1.1		ug/L			12/01/11 14:08	1
Ethylene	1.0	U	1.0		ug/L			12/01/11 14:08	1
Methane	5700		0.58		ug/L			12/01/11 14:08	1

### Method: 6010B - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	11		0.050		mg/L		12/01/11 08:30	12/05/11 19:50	1
Manganese	0.41		0.010		mg/L		12/01/11 08:30	12/05/11 19:50	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	27		1.0		mg/L			12/01/11 12:40	1
Nitrate as N	0.050	U	0.050		mg/L			11/29/11 16:11	1
Sulfate	5.0	U	5.0		mg/L			12/08/11 11:23	1
Total Organic Carbon	31		1.0		mg/L			12/07/11 13:02	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	350		5.0		mg/L			11/30/11 17:36	1
Carbon Dioxide, Free	40		5.0		mg/L			11/30/11 17:36	1

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## Client Sample Results

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

Client Sample ID: CPA-A-SHU-F(0.2)-1111

Lab Sample ID: 680-74713-2

Date Collected: 11/28/11 10:50

Matrix: Water

Date Received: 11/29/11 12:12

### Method: 6010B - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	11		0.050		mg/L		12/01/11 08:30	12/05/11 19:55	1
Manganese, Dissolved	0.40		0.010		mg/L		12/01/11 08:30	12/05/11 19:55	1

### General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	21		1.0		mg/L			12/02/11 10:55	1

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## Client Sample Results

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

Client Sample ID: CPA-A-DMU-1111

Lab Sample ID: 680-74713-3

Date Collected: 11/28/11 14:05

Matrix: Water

Date Received: 11/29/11 12:12

Method: 8260B - Volatile Organic Compounds (GC/MS)									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	2.9		2.0		ug/L			12/06/11 20:37	2
Chlorobenzene	220		2.0		ug/L			12/06/11 20:37	2
1,2-Dichlorobenzene	200		2.0		ug/L			12/06/11 20:37	2
1,3-Dichlorobenzene	20		2.0		ug/L			12/06/11 20:37	2
1,4-Dichlorobenzene	180		2.0		ug/L			12/06/11 20:37	2
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	107		70 - 130					12/06/11 20:37	2
Dibromofluoromethane	84		70 - 130					12/06/11 20:37	2
Toluene-d8 (Surr)	104		70 - 130					12/06/11 20:37	2

Method: RSK-175 - Dissolved Gases (GC)									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	1.7		1.1		ug/L			12/01/11 14:21	1
Ethylene	1.0	U	1.0		ug/L			12/01/11 14:21	1
Methane	110		0.58		ug/L			12/01/11 14:21	1

Method: 6010B - Metals (ICP) - Total Recoverable									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	7.2		0.050		mg/L		12/01/11 08:30	12/05/11 20:00	1
Manganese	0.36		0.010		mg/L		12/01/11 08:30	12/05/11 20:00	1

General Chemistry									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	54		1.0		mg/L			12/01/11 12:40	1
Nitrate as N	0.050	U	0.050		mg/L			11/29/11 16:14	1
Sulfate	89		25		mg/L			12/08/11 12:21	5
Total Organic Carbon	6.6		1.0		mg/L			12/07/11 13:43	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	540		5.0		mg/L			11/30/11 17:47	1
Carbon Dioxide, Free	29		5.0		mg/L			11/30/11 17:47	1

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## Client Sample Results

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

Client Sample ID: CPA-A-DHU-F(0.2)-1111

Lab Sample ID: 680-74713-4

Date Collected: 11/28/11 14:05

Matrix: Water

Date Received: 11/29/11 12:12

### Method: 6010B - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	7.3		0.050		mg/L		12/01/11 08:30	12/05/11 20:16	1
Manganese, Dissolved	0.37		0.010		mg/L		12/01/11 08:30	12/05/11 20:16	1

### General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	6.3		1.0		mg/L			12/02/11 10:55	1

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# Client Sample Results

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

Client Sample ID: CPA-A-MHU-1111

Lab Sample ID: 680-74713-5

Date Collected: 11/28/11 15:15

Matrix: Water

Date Received: 11/29/11 12:12

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	360		5.0		ug/L			12/07/11 22:55	5
Chlorobenzene	530		5.0		ug/L			12/07/11 22:55	5
1,2-Dichlorobenzene	5.0	U	5.0		ug/L			12/07/11 22:55	5
1,3-Dichlorobenzene	5.0	U	5.0		ug/L			12/07/11 22:55	5
1,4-Dichlorobenzene	6.7		5.0		ug/L			12/07/11 22:55	5
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
4-Bromofluorobenzene	100		70 - 130					12/07/11 22:55	5
Dibromofluoromethane	87		70 - 130					12/07/11 22:55	5
Toluene-d8 (Surr)	105		70 - 130					12/07/11 22:55	5

## Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	12		1.1		ug/L			12/01/11 14:34	1
Ethylene	1.0	U	1.0		ug/L			12/01/11 14:34	1
Methane	11000		0.58		ug/L			12/01/11 14:34	1

## Method: 6010B - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	1.1		0.050		mg/L		12/01/11 08:30	12/06/11 09:10	1
Manganese	0.31		0.010		mg/L		12/01/11 08:30	12/06/11 09:10	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	26		1.0		mg/L			12/01/11 12:40	1
Nitrate as N	0.050	U	0.050		mg/L			11/29/11 16:16	1
Sulfate	5.0	U	5.0		mg/L			12/08/11 11:23	1
Total Organic Carbon	7.0		1.0		mg/L			12/07/11 13:58	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	730		5.0		mg/L			11/30/11 17:59	1
Carbon Dioxide, Free	20		5.0		mg/L			11/30/11 17:59	1

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## Client Sample Results

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

Client Sample ID: CPA-A-MHU-F(0.2)-1111

Lab Sample ID: 680-74713-6

Date Collected: 11/28/11 15:15

Matrix: Water

Date Received: 11/29/11 12:12

### Method: 6010B - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	0.97		0.050		mg/L		12/01/11 08:30	12/05/11 20:26	1
Manganese, Dissolved	0.31		0.010		mg/L		12/01/11 08:30	12/05/11 20:26	1

### General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	7.0		1.0		mg/L			12/02/11 10:55	1

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## Client Sample Results

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

Client Sample ID: 4Q11SUPP Trip Blank #1

Lab Sample ID: 680-74713-7

Date Collected: 11/28/11 00:00

Matrix: Water

Date Received: 11/29/11 12:12

Method: 8260B - Volatile Organic Compounds (GC/MS)									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.0	U	1.0		ug/L			12/06/11 14:28	1
Chlorobenzene	1.0	U	1.0		ug/L			12/06/11 14:28	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			12/06/11 14:28	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			12/06/11 14:28	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			12/06/11 14:28	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	104		70 - 130					12/06/11 14:28	1
Dibromofluoromethane	93		70 - 130					12/06/11 14:28	1
Toluene-d8 (Surr)	100		70 - 130					12/06/11 14:28	1

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# Client Sample Results

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

Client Sample ID: CPA-D-SHU-1111

Lab Sample ID: 680-74746-1

Date Collected: 11/29/11 10:20

Matrix: Water

Date Received: 11/30/11 09:52

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	8100		2000		ug/L			12/09/11 20:17	2000
Chlorobenzene	180000		2000		ug/L			12/09/11 20:17	2000
1,2-Dichlorobenzene	2000	U	2000		ug/L			12/09/11 20:17	2000
1,3-Dichlorobenzene	2000	U	2000		ug/L			12/09/11 20:17	2000
1,4-Dichlorobenzene	2000	U	2000		ug/L			12/09/11 20:17	2000
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
4-Bromofluorobenzene	97		70 - 130					12/09/11 20:17	2000
Dibromofluoromethane	98		70 - 130					12/09/11 20:17	2000
Toluene-d8 (Surr)	98		70 - 130					12/09/11 20:17	2000

## Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	1.1	U	1.1		ug/L			12/01/11 15:00	1
Ethylene	1.0	U	1.0		ug/L			12/01/11 15:00	1
Methane	9.0		0.58		ug/L			12/01/11 15:00	1

## Method: 6010B - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	130		0.050		mg/L		12/01/11 08:30	12/05/11 20:36	1
Manganese	3.8		0.010		mg/L		12/01/11 08:30	12/05/11 20:36	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	300		5.0		mg/L			12/01/11 13:10	5
Nitrate as N	19		2.5		mg/L			11/30/11 17:05	50
Sulfate	2300		500		mg/L			12/08/11 13:01	100
Total Organic Carbon	150		10		mg/L			12/08/11 14:36	10
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	5.0	U	5.0		mg/L			11/30/11 18:16	1
Carbon Dioxide, Free	5.0	U	5.0		mg/L			11/30/11 18:16	1

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## Client Sample Results

Client: Solutia Inc.

Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1

SDG: KPS068

Client Sample ID: CPA-D-SHU-F(0.2)-1111

Lab Sample ID: 680-74746-2

Date Collected: 11/29/11 10:20

Matrix: Water

Date Received: 11/30/11 09:52

### Method: 6010B - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	130		0.050		mg/L		12/01/11 08:30	12/05/11 20:41	1
Manganese, Dissolved	3.8		0.010		mg/L		12/01/11 08:30	12/05/11 20:41	1

### General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	130		5.0		mg/L			12/05/11 15:35	5

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JAN 13 2012

TestAmerica Savannah

## Client Sample Results

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

Client Sample ID: CPA-D-MHU-1111

Lab Sample ID: 680-74746-3

Date Collected: 11/29/11 11:40

Matrix: Water

Date Received: 11/30/11 09:52

### Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	21000		1000		ug/L			12/10/11 15:35	1000
Chlorobenzene	75000		1000		ug/L			12/10/11 15:35	1000
1,2-Dichlorobenzene	12000		1000		ug/L			12/10/11 15:35	1000
1,3-Dichlorobenzene	1000	U	1000		ug/L			12/10/11 15:35	1000
1,4-Dichlorobenzene	12000		1000		ug/L			12/10/11 15:35	1000
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
4-Bromofluorobenzene	98		70 - 130					12/10/11 15:35	1000
Dibromofluoromethane	94		70 - 130					12/10/11 15:35	1000
Toluene-d8 (Surr)	96		70 - 130					12/10/11 15:35	1000

### Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	15		1.1		ug/L			12/01/11 15:12	1
Ethylene	1.0	U	1.0		ug/L			12/01/11 15:12	1
Methane	11000		0.58		ug/L			12/01/11 15:12	1

### Method: 6010B - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	1.6		0.050		mg/L		12/01/11 08:30	12/05/11 20:47	1
Manganese	2.4		0.010		mg/L		12/01/11 08:30	12/05/11 20:47	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	450		5.0		mg/L			12/01/11 13:10	5
Nitrate as N	0.050	U	0.050		mg/L			11/30/11 16:39	1
Sulfate	200		50		mg/L			12/08/11 12:45	10
Total Organic Carbon	120		10		mg/L			12/08/11 15:01	10
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	590		5.0		mg/L			11/30/11 18:27	1
Carbon Dioxide, Free	110		5.0		mg/L			11/30/11 18:27	1

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JAN 13 2012

TestAmerica Savannah

## Client Sample Results

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

Client Sample ID: CPA-D-MHU-F(0.2)-1111

Lab Sample ID: 680-74746-4

Date Collected: 11/29/11 11:40

Matrix: Water

Date Received: 11/30/11 09:52

### Method: 6010B - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	1.6		0.050		mg/L		12/01/11 08:30	12/06/11 09:14	1
Manganese, Dissolved	2.4		0.010		mg/L		12/01/11 08:30	12/06/11 09:14	1

### General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	120		5.0		mg/L			12/05/11 15:35	5

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JAN 13 2012

TestAmerica Savannah

# Client Sample Results

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

Client Sample ID: CPA-D-DHU-1111

Lab Sample ID: 680-74746-5

Date Collected: 11/29/11 14:30

Matrix: Water

Date Received: 11/30/11 09:52

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	430		200		ug/L			12/09/11 16:48	200
Chlorobenzene	17000		200		ug/L			12/09/11 16:48	200
1,2-Dichlorobenzene	2500		200		ug/L			12/09/11 16:48	200
1,3-Dichlorobenzene	510		200		ug/L			12/09/11 16:48	200
1,4-Dichlorobenzene	3300		200		ug/L			12/09/11 16:48	200

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	97		70 - 130		12/09/11 16:48	200
Dibromofluoromethane	95		70 - 130		12/09/11 16:48	200
Toluene-d8 (Surr)	98		70 - 130		12/09/11 16:48	200

## Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	19		1.1		ug/L			12/01/11 15:25	1
Ethylene	1.0	U	1.0		ug/L			12/01/11 15:25	1
Methane	2300		0.58		ug/L			12/01/11 15:25	1

## Method: 6010B - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.33		0.050		mg/L		12/01/11 08:30	12/05/11 20:57	1
Manganese	0.33		0.010		mg/L		12/01/11 08:30	12/05/11 20:57	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	81		1.0		mg/L			12/01/11 12:45	1
Nitrate as N	0.076		0.050		mg/L			11/30/11 16:40	1
Sulfate	5.0	U	5.0		mg/L			12/08/11 11:25	1
Total Organic Carbon	26		1.0		mg/L			12/07/11 14:41	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	620		5.0		mg/L			11/30/11 18:38	1
Carbon Dioxide, Free	22		5.0		mg/L			11/30/11 18:38	1

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TestAmerica Savannah

## Client Sample Results

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

Client Sample ID: CPA-D-DHU-F(0.2)-1111

Lab Sample ID: 680-74746-6

Date Collected: 11/29/11 14:30

Matrix: Water

Date Received: 11/30/11 09:52

### Method: 6010B - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	0.28		0.050		mg/L		12/01/11 08:30	12/05/11 21:02	1
Manganese, Dissolved	0.33		0.010		mg/L		12/01/11 08:30	12/05/11 21:02	1

### General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	24		1.0		mg/L			12/05/11 15:35	1

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JAN 13 2012

TestAmerica Savannah

## Client Sample Results

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

**Client Sample ID: CPA-D-SHU-1111-AD**

**Lab Sample ID: 680-74746-7**

Date Collected: 11/29/11 10:20

Matrix: Water

Date Received: 11/30/11 09:52

### Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	7800		1000		ug/L			12/09/11 16:21	1000
Chlorobenzene	180000		1000		ug/L			12/09/11 16:21	1000
1,2-Dichlorobenzene	1000	U	1000		ug/L			12/09/11 16:21	1000
1,3-Dichlorobenzene	1000	U	1000		ug/L			12/09/11 16:21	1000
1,4-Dichlorobenzene	1000	U	1000		ug/L			12/09/11 16:21	1000
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
4-Bromofluorobenzene	98		70 - 130					12/09/11 16:21	1000
Dibromofluoromethane	94		70 - 130					12/09/11 16:21	1000
Toluene-d8 (Surr)	97		70 - 130					12/09/11 16:21	1000

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TestAmerica Savannah

# Client Sample Results

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

Client Sample ID: CPA-C-DHU-1111

Lab Sample ID: 680-74799-1

Date Collected: 11/30/11 09:55

Matrix: Water

Date Received: 12/01/11 09:52

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	2800		500		ug/L			12/13/11 18:49	500
Chlorobenzene	33000		500		ug/L			12/13/11 18:49	500
1,2-Dichlorobenzene	5000		500		ug/L			12/13/11 18:49	500
1,3-Dichlorobenzene	520		500		ug/L			12/13/11 18:49	500
1,4-Dichlorobenzene	11000		500		ug/L			12/13/11 18:49	500
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	101		70 - 130					12/13/11 18:49	500
Dibromofluoromethane	98		70 - 130					12/13/11 18:49	500
Toluene-d8 (Surr)	105		70 - 130					12/13/11 18:49	500

## Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	7.1		1.1		ug/L			12/05/11 18:46	1
Ethylene	1.0	U	1.0		ug/L			12/05/11 18:46	1
Methane	400		0.58		ug/L			12/05/11 18:46	1

## Method: 6010B - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	2.4		0.050		mg/L		12/06/11 13:12	12/07/11 21:20	1
Manganese	0.47		0.010		mg/L		12/06/11 13:12	12/07/11 21:20	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	69	J	2.0		mg/L			12/19/11 17:39	2
Nitrate as N	0.050	U	0.050		mg/L			12/01/11 16:01	1
Sulfate	66		25		mg/L			12/08/11 12:43	5
Total Organic Carbon	23		10		mg/L			12/08/11 15:18	10
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	550		5.0		mg/L			12/01/11 19:23	1
Carbon Dioxide, Free	22		5.0		mg/L			12/01/11 19:23	1

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TestAmerica Savannah

## Client Sample Results

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

Client Sample ID: CPA-C-DHU-F(0.2)1111

Lab Sample ID: 680-74799-2

Date Collected: 11/30/11 09:55

Matrix: Water

Date Received: 12/01/11 09:52

### Method: 6010B - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	2.3		0.050		mg/L		12/06/11 13:12	12/07/11 21:25	1
Manganese, Dissolved	0.46		0.010		mg/L		12/06/11 13:12	12/07/11 21:25	1

### General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	23		1.0		mg/L			12/15/11 18:27	1

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TestAmerica Savannah

## Client Sample Results

Client: Solutia Inc.  
Project/Site: WGK GW/CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

**Client Sample ID: CPA-C-MHU-1111**

**Lab Sample ID: 680-74799-3**

Date Collected: 11/30/11 11:00

Matrix: Water

Date Received: 12/01/11 09:52

### Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	84000		2500		ug/L			12/13/11 20:16	2500
Chlorobenzene	140000		2500		ug/L			12/13/11 20:16	2500
1,2-Dichlorobenzene	16000		2500		ug/L			12/13/11 20:16	2500
1,3-Dichlorobenzene	2500	U	2500		ug/L			12/13/11 20:16	2500
1,4-Dichlorobenzene	17000		2500		ug/L			12/13/11 20:16	2500
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
4-Bromofluorobenzene	99		70 - 130					12/13/11 20:16	2500
Dibromofluoromethane	102		70 - 130					12/13/11 20:16	2500
Toluene-d8 (Surr)	104		70 - 130					12/13/11 20:16	2500

### Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	6.1		1.1		ug/L			12/05/11 18:59	1
Ethylene	18		1.0		ug/L			12/05/11 18:59	1
Methane	14000		0.58		ug/L			12/05/11 18:59	1

### Method: 6010B - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	46		0.050		mg/L		12/06/11 13:12	12/07/11 21:30	1
Manganese	2.8		0.010		mg/L		12/06/11 13:12	12/07/11 21:30	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	680		10		mg/L			12/19/11 17:39	10
Nitrate as N	0.050	U	0.050		mg/L			12/01/11 16:04	1
Sulfate	110		25		mg/L			12/08/11 12:31	5
Total Organic Carbon	45		10		mg/L			12/08/11 15:35	10
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	460		5.0		mg/L			12/01/11 19:33	1
Carbon Dioxide, Free	160		5.0		mg/L			12/01/11 19:33	1

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TestAmerica Savannah

## Client Sample Results

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

Client Sample ID: CPA-C-MHU-F(0.2)-1111

Lab Sample ID: 680-74799-4

Date Collected: 11/30/11 11:00

Matrix: Water

Date Received: 12/01/11 09:52

### Method: 6010B - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	45		0.050		mg/L		12/06/11 13:12	12/07/11 21:35	1
Manganese, Dissolved	2.7		0.010		mg/L		12/06/11 13:12	12/07/11 21:35	1

### General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	43		1.0		mg/L			12/15/11 18:27	1

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TestAmerica Savannah

# Client Sample Results

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

Client Sample ID: CPA-C-SHU-1111-EB

Lab Sample ID: 680-74799-5

Date Collected: 11/30/11 12:50

Matrix: Water

Date Received: 12/01/11 09:52

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result - Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	15	1.0		ug/L			12/11/11 16:47	1
Chlorobenzene	87	1.0		ug/L			12/11/11 16:47	1
1,2-Dichlorobenzene	17	1.0		ug/L			12/11/11 16:47	1
1,3-Dichlorobenzene	1.1	1.0		ug/L			12/11/11 16:47	1
1,4-Dichlorobenzene	21	1.0		ug/L			12/11/11 16:47	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	97		70 - 130				12/11/11 16:47	1
Dibromofluoromethane	87		70 - 130				12/11/11 16:47	1
Toluene-d8 (Surr)	107		70 - 130				12/11/11 16:47	1

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JAN 13 2012

TestAmerica Savannah

# Client Sample Results

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

Client Sample ID: CPA-C-SHU-1111

Lab Sample ID: 680-74799-6

Date Collected: 11/30/11 13:40

Matrix: Water

Date Received: 12/01/11 09:52

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1600		200		ug/L			12/13/11 19:18	200
Chlorobenzene	6700		200		ug/L			12/13/11 19:18	200
1,2-Dichlorobenzene	11000		200		ug/L			12/13/11 19:18	200
1,3-Dichlorobenzene	630		200		ug/L			12/13/11 19:18	200
1,4-Dichlorobenzene	4100		200		ug/L			12/13/11 19:18	200

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	100		70 - 130		12/13/11 19:18	200
Dibromofluoromethane	100		70 - 130		12/13/11 19:18	200
Toluene-d8 (Sum)	103		70 - 130		12/13/11 19:18	200

## Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	1.1	U	1.1		ug/L			12/05/11 19:12	1
Ethylene	1.0	U	1.0		ug/L			12/05/11 19:12	1
Methane	410		0.58		ug/L			12/05/11 19:12	1

## Method: 6010B - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.33		0.050		mg/L		12/06/11 13:12	12/07/11 21:40	1
Manganese	2.0		0.010		mg/L		12/06/11 13:12	12/07/11 21:40	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	300		10		mg/L			12/19/11 17:39	10
Nitrate as N	5.2		0.25		mg/L			12/01/11 16:14	5
Sulfate	180		50		mg/L			12/08/11 12:31	10
Total Organic Carbon	310		10		mg/L			12/08/11 15:53	10
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	450		5.0		mg/L			12/01/11 20:05	1
Carbon Dioxide, Free	32		5.0		mg/L			12/01/11 20:05	1

8

JAN 13 2012

TestAmerica Savannah

## Client Sample Results

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

Client Sample ID: CPA-C-SHU-F(0.2)-1111

Lab Sample ID: 680-74799-7

Date Collected: 11/30/11 13:40

Matrix: Water

Date Received: 12/01/11 09:52

### Method: 6010B - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	0.18		0.050		mg/L		12/06/11 13:12	12/07/11 21:45	1
Manganese, Dissolved	2.0		0.010		mg/L		12/06/11 13:12	12/07/11 21:45	1

### General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	320		10		mg/L			12/21/11 21:30	10

8

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TestAmerica Savannah

## Client Sample Results

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

**Client Sample ID: CPA-B-DHU-1111**

**Lab Sample ID: 680-74799-8**

Date Collected: 11/30/11 14:45

Matrix: Water

Date Received: 12/01/11 09:52

### Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	500	U	500		ug/L			12/13/11 19:47	500
Chlorobenzene	41000		500		ug/L			12/13/11 19:47	500
1,2-Dichlorobenzene	23000		500		ug/L			12/13/11 19:47	500
1,3-Dichlorobenzene	1900		500		ug/L			12/13/11 19:47	500
1,4-Dichlorobenzene	33000		500		ug/L			12/13/11 19:47	500

Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	96		70 - 130					12/13/11 19:47	500
Dibromofluoromethane	99		70 - 130					12/13/11 19:47	500
Toluene-d8 (Surr)	106		70 - 130					12/13/11 19:47	500

### Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	2.4		1.1		ug/L			12/05/11 19:25	1
Ethylene	1.0	U	1.0		ug/L			12/05/11 19:25	1
Methane	130		0.58		ug/L			12/05/11 19:25	1

### Method: 6010B - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	9.1		0.050		mg/L		12/06/11 13:12	12/07/11 21:50	1
Manganese	0.51		0.010		mg/L		12/06/11 13:12	12/07/11 21:50	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	66		1.0		mg/L			12/19/11 18:22	1
Nitrate as N	0.050	U	0.050		mg/L			12/01/11 16:07	1
Sulfate	74		25		mg/L			12/08/11 12:33	5
Total Organic Carbon	8.5	H J	1.0		mg/L			01/13/12 11:46	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	510		5.0		mg/L			12/01/11 19:43	1
Carbon Dioxide, Free	26		5.0		mg/L			12/01/11 19:43	1

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TestAmerica Savannah

## Client Sample Results

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

Client Sample ID: CPA-B-DHU-F(0.2)-1111

Lab Sample ID: 680-74799-9

Date Collected: 11/30/11 14:45

Matrix: Water

Date Received: 12/01/11 09:52

### Method: 6010B - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	8.7		0.050		mg/L		12/06/11 13:12	12/07/11 22:05	1
Manganese, Dissolved	0.49		0.010		mg/L		12/06/11 13:12	12/07/11 22:05	1

### General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	8.7		1.0		mg/L			12/15/11 18:27	1

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TestAmerica Savannah

## Client Sample Results

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

**Client Sample ID: 4Q11 CPA Trip Blank #3**

**Lab Sample ID: 680-74799-10**

Date Collected: 11/30/11 00:00

Matrix: Water

Date Received: 12/01/11 09:52

### Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.0	U	1.0		ug/L			12/11/11 15:24	1
Chlorobenzene	1.0	U	1.0		ug/L			12/11/11 15:24	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			12/11/11 15:24	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			12/11/11 15:24	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			12/11/11 15:24	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	96		70 - 130					12/11/11 15:24	1
Dibromofluoromethane	87		70 - 130					12/11/11 15:24	1
Toluene-d8 (Surr)	108		70 - 130					12/11/11 15:24	1

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TestAmerica Savannah

# Client Sample Results

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

Client Sample ID: CPA-B-MHU-1111

Lab Sample ID: 680-74862-1

Date Collected: 12/01/11 10:05

Matrix: Water

Date Received: 12/02/11 09:36

*\* Do not use this data. Use all other data.*

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<del>Benzene</del>	<del>100000</del>	<del>E</del>	<del>200</del>		<del>ug/L</del>			<del>12/14/11 19:03</del>	<del>200</del>
<del>Chlorobenzene</del>	<del>70000</del>	<del>E</del>	<del>200</del>		<del>ug/L</del>			<del>12/14/11 19:03</del>	<del>200</del>
1,2-Dichlorobenzene	200	U	200		ug/L			12/14/11 19:03	200
1,3-Dichlorobenzene	200	U	200		ug/L			12/14/11 19:03	200
1,4-Dichlorobenzene	260		200		ug/L			12/14/11 19:03	200

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	95		70 - 130		12/14/11 19:03	200
Dibromofluoromethane	80		70 - 130		12/14/11 19:03	200
Toluene-d8 (Surr)	97		70 - 130		12/14/11 19:03	200

*\* Use these results only. All other data was reported from the 200x dilution analysis.*

## Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	110000	D	1000		ug/L			12/15/11 19:39	1000
Chlorobenzene	77000	D	1000		ug/L			12/15/11 19:39	1000
1,2-Dichlorobenzene	1000	U	1000		ug/L			12/15/11 19:39	1000
1,3-Dichlorobenzene	1000	U	1000		ug/L			12/15/11 19:39	1000
1,4-Dichlorobenzene	1000	U	1000		ug/L			12/15/11 19:39	1000

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	98		70 - 130		12/15/11 19:39	1000
Dibromofluoromethane	105		70 - 130		12/15/11 19:39	1000
Toluene-d8 (Surr)	105		70 - 130		12/15/11 19:39	1000

## Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	140		1.1		ug/L			12/14/11 22:56	1
Ethylene	7.0		1.0		ug/L			12/14/11 22:56	1
Methane	10000		0.58		ug/L			12/14/11 22:56	1

## Method: 6010B - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	39		0.050		mg/L		12/07/11 10:45	12/06/11 19:46	1
Manganese	2.3		0.010		mg/L		12/07/11 10:45	12/06/11 19:46	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	350		10		mg/L			12/19/11 17:39	10
Nitrate as N	0.050	U	0.050		mg/L			12/02/11 16:01	1
Sulfate	5.0	U	5.0		mg/L			12/08/11 11:35	1
Total Organic Carbon	23		10		mg/L			12/08/11 11:25	10
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	540		5.0		mg/L			12/03/11 17:00	1
Carbon Dioxide, Free	150		5.0		mg/L			12/03/11 17:00	1

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## Client Sample Results

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

Client Sample ID: CPA-B-MHU-F(0.2)-1111

Lab Sample ID: 680-74862-2

Date Collected: 12/01/11 10:05

Matrix: Water

Date Received: 12/02/11 09:36

### Method: 6010B - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	40		0.050		mg/L		12/07/11 10:45	12/08/11 19:51	1
Manganese, Dissolved	2.4		0.010		mg/L		12/07/11 10:45	12/08/11 19:51	1

### General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	24		1.0		mg/L			12/15/11 18:27	1

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## Client Sample Results

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

Client Sample ID: CPA-B-SHU-1111

Lab Sample ID: 680-74862-3

Date Collected: 12/01/11 11:20

Matrix: Water

Date Received: 12/02/11 09:36

### Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	500	U	500		ug/L			12/15/11 18:41	500
Chlorobenzene	41000		500		ug/L			12/15/11 18:41	500
1,2-Dichlorobenzene	500	U	500		ug/L			12/15/11 18:41	500
1,3-Dichlorobenzene	500	U	500		ug/L			12/15/11 18:41	500
1,4-Dichlorobenzene	500	U	500		ug/L			12/15/11 18:41	500

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	97		70 - 130		12/15/11 18:41	500
Dibromofluoromethane	100		70 - 130		12/15/11 18:41	500
Toluene-d8 (Surr)	105		70 - 130		12/15/11 18:41	500

### Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	1.1	U	1.1		ug/L			12/14/11 23:09	1
Ethylene	1.0	U	1.0		ug/L			12/14/11 23:09	1
Methane	50		0.58		ug/L			12/14/11 23:09	1

### Method: 6010B - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	38		0.050		mg/L		12/07/11 09:59	12/08/11 04:35	1
Manganese	2.2		0.010		mg/L		12/07/11 09:59	12/08/11 04:35	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	300		10		mg/L			12/19/11 17:44	10
Nitrate as N	0.050	U	0.050		mg/L			12/02/11 16:02	1
Sulfate	90		25		mg/L			12/08/11 12:33	5
Total Organic Carbon	3.7	H	1.0		mg/L			01/09/12 12:17	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	420		5.0		mg/L			12/03/11 17:10	1
Carbon Dioxide, Free	110		5.0		mg/L			12/03/11 17:10	1

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TestAmerica Savannah

# Client Sample Results

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

Client Sample ID: CPA-B-SHU-1111-AD

Lab Sample ID: 680-74862-4

Date Collected: 12/01/11 11:20

Matrix: Water

Date Received: 12/02/11 09:36

*\*Do not use this data. Use all other data.*

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	200	U	200		ug/L			12/14/11 18:34	200
<del>Chlorobenzene</del>	<del>46000</del>	<del>E</del>	<del>200</del>		<del>ug/L</del>			<del>12/14/11 18:34</del>	<del>200</del>
1,2-Dichlorobenzene	200	U	200		ug/L			12/14/11 18:34	200
1,3-Dichlorobenzene	200	U	200		ug/L			12/14/11 18:34	200
1,4-Dichlorobenzene	200	U	200		ug/L			12/14/11 18:34	200

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	95		70 - 130		12/14/11 18:34	200
Dibromofluoromethane	89		70 - 130		12/14/11 18:34	200
Toluene-d8 (Surr)	109		70 - 130		12/14/11 18:34	200

*\* Use these results only. All other data was reported from the 200x dilution analysis.*

## Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1000	U	1000		ug/L			12/15/11 19:10	1000
<del>Chlorobenzene</del>	<del>43000</del>	<del>D</del>	<del>1000</del>		<del>ug/L</del>			<del>12/15/11 19:10</del>	<del>1000</del>
1,2-Dichlorobenzene	1000	U	1000		ug/L			12/15/11 19:10	1000
1,3-Dichlorobenzene	1000	U	1000		ug/L			12/15/11 19:10	1000
1,4-Dichlorobenzene	1000	U	1000		ug/L			12/15/11 19:10	1000

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	99		70 - 130		12/15/11 19:10	1000
Dibromofluoromethane	99		70 - 130		12/15/11 19:10	1000
Toluene-d8 (Surr)	105		70 - 130		12/15/11 19:10	1000

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## Client Sample Results

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

Client Sample ID: CPA-B-SHU-F(0.2)-1111

Lab Sample ID: 680-74862-5

Date Collected: 12/01/11 11:20

Matrix: Water

Date Received: 12/02/11 09:36

### Method: 6010B - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	38		0.050		mg/L		12/07/11 09:59	12/08/11 04:30	1
Manganese, Dissolved	2.2		0.010		mg/L		12/07/11 09:59	12/08/11 04:30	1

### General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	3.6		1.0		mg/L			12/15/11 18:27	1

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## Client Sample Results

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

**Client Sample ID: 4Q11 CPA Trip Blank #4**

**Lab Sample ID: 680-74862-6**

Date Collected: 12/01/11 00:00

Matrix: Water

Date Received: 12/02/11 09:36

Method: 8260B - Volatile Organic Compounds (GC/MS)									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.0	U	1.0		ug/L			12/06/11 14:05	1
Chlorobenzene	1.0	U	1.0		ug/L			12/06/11 14:05	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			12/06/11 14:05	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			12/06/11 14:05	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			12/06/11 14:05	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	101		70 - 130					12/06/11 14:05	1
Dibromofluoromethane	96		70 - 130					12/06/11 14:05	1
Toluene-d8 (Surr)	100		70 - 130					12/06/11 14:05	1

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TestAmerica Savannah

## Surrogate Summary

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

**Method: 8260B - Volatile Organic Compounds (GC/MS)**

**Matrix: Water**

**Prep Type: Total/NA**

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		BFB (70-130)	DBFM (70-130)	TOL (70-130)
680-74713-1	CPA-A-SHU-1111	101	92	102
680-74713-3	CPA-A-DMU-1111	107	84	104
680-74713-5	CPA-A-MHU-1111	100	87	105
680-74713-7	4Q11SUPP Trip Blank #1	104	93	100
680-74746-1	CPA-D-SHU-1111	97	98	98
680-74746-3	CPA-D-MHU-1111	98	94	96
680-74746-5	CPA-D-DHU-1111	97	95	98
680-74746-7	CPA-D-SHU-1111-AD	98	94	97
680-74799-1	CPA-C-DHU-1111	101	98	105
680-74799-1 MS	CPA-C-DHU-1111	96	100	98
680-74799-1 MSD	CPA-C-DHU-1111	86	92	87
680-74799-3	CPA-C-MHU-1111	99	102	104
680-74799-5	CPA-C-SHU-1111-EB	97	87	107
680-74799-6	CPA-C-SHU-1111	100	100	103
680-74799-8	CPA-B-DHU-1111	96	99	106
680-74799-10	4Q11 CPA Trip Blank #3	96	87	108
680-74862-1	CPA-B-MHU-1111	95	80	97
680-74862-1 - DL	CPA-B-MHU-1111	98	105	105
680-74862-3	CPA-B-SHU-1111	97	100	105
680-74862-4	CPA-B-SHU-1111-AD	95	89	109
680-74862-4 - DL	CPA-B-SHU-1111-AD	99	99	105
680-74862-6	4Q11 CPA Trip Blank #4	101	96	100
LCS 680-222917/4	Lab Control Sample	99	102	97
LCS 680-223045/26	Lab Control Sample	96	101	98
LCS 880-223160/3	Lab Control Sample	97	103	97
LCS 680-223259/27	Lab Control Sample	98	102	99
LCS 880-223268/3	Lab Control Sample	94	109	100
LCS 880-223412/3	Lab Control Sample	101	109	98
LCS 680-223630/4	Lab Control Sample	107	96	103
LCS 680-223702/4	Lab Control Sample	103	109	102
LCS 680-223744/6	Lab Control Sample	104	117	107
LCSD 680-222917/5	Lab Control Sample Dup	107	105	103
LCSD 680-223045/14	Lab Control Sample Dup	102	106	103
LCSD 880-223160/4	Lab Control Sample Dup	95	104	98
LCSD 680-223259/26	Lab Control Sample Dup	101	99	103
LCSD 680-223268/4	Lab Control Sample Dup	96	107	99
LCSD 680-223412/4	Lab Control Sample Dup	94	99	93
LCSD 680-223630/5	Lab Control Sample Dup	106	100	103
LCSD 680-223702/5	Lab Control Sample Dup	93	95	95
LCSD 680-223744/7	Lab Control Sample Dup	93	102	96
MB 680-222917/7	Method Blank	102	97	101
MB 680-223045/16	Method Blank	102	96	100
MB 680-223160/8	Method Blank	97	95	96
MB 880-223259/4	Method Blank	99	87	108
MB 880-223268/6	Method Blank	98	93	98
MB 680-223412/6	Method Blank	102	106	101
MB 680-223630/7	Method Blank	95	89	111
MB 680-223702/7	Method Blank	103	105	102
MB 680-223744/2	Method Blank	100	101	102

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Surrogate Legend

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TestAmerica Savannah

## Surrogate Summary

Client: Solutia Inc.

Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1

SDG: KPS068

BFB = 4-Bromofluorobenzene

DBFM = Dibromofluoromethane

TOL = Toluene-d8 (Surr)

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TestAmerica Savannah

# QC Sample Results

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 680-222917/7

Matrix: Water

Analysis Batch: 222917

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	Result	MB MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.0	U	1.0		ug/L			12/06/11 13:30	1
Chlorobenzene	1.0	U	1.0		ug/L			12/06/11 13:30	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			12/06/11 13:30	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			12/06/11 13:30	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			12/06/11 13:30	1
Surrogate	%Recovery	MB MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	102		70 - 130					12/06/11 13:30	1
Dibromofluoromethane	97		70 - 130					12/06/11 13:30	1
Toluene-d8 (Surr)	101		70 - 130					12/06/11 13:30	1

Lab Sample ID: LCS 680-222917/4

Matrix: Water

Analysis Batch: 222917

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS LCS Result Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	50.0	49.5	ug/L		99	70 - 130
Chlorobenzene	50.0	48.0	ug/L		96	70 - 130
1,2-Dichlorobenzene	50.0	48.9	ug/L		98	70 - 130
1,3-Dichlorobenzene	50.0	49.6	ug/L		99	70 - 130
1,4-Dichlorobenzene	50.0	49.4	ug/L		99	70 - 130
Surrogate	%Recovery	LCS LCS Qualifier	Limits			
4-Bromofluorobenzene	99		70 - 130			
Dibromofluoromethane	102		70 - 130			
Toluene-d8 (Surr)	97		70 - 130			

Lab Sample ID: LCSD 680-222917/5

Matrix: Water

Analysis Batch: 222917

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD LCSD Result Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	50.0	51.8	ug/L		104	70 - 130	5	30
Chlorobenzene	50.0	51.4	ug/L		103	70 - 130	7	30
1,2-Dichlorobenzene	50.0	53.0	ug/L		106	70 - 130	8	30
1,3-Dichlorobenzene	50.0	53.7	ug/L		107	70 - 130	8	30
1,4-Dichlorobenzene	50.0	53.0	ug/L		106	70 - 130	7	30
Surrogate	%Recovery	LCSD LCSD Qualifier	Limits					
4-Bromofluorobenzene	107		70 - 130					
Dibromofluoromethane	105		70 - 130					
Toluene-d8 (Surr)	103		70 - 130					

Lab Sample ID: MB 680-223045/16

Matrix: Water

Analysis Batch: 223045

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	Result	MB MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.0	U	1.0		ug/L			12/07/11 16:25	1

## QC Sample Results

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

### Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 680-223045/16

Matrix: Water

Analysis Batch: 223045

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	Result	MB MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlorobenzene	1.0	U	1.0		ug/L			12/07/11 16:25	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			12/07/11 16:25	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			12/07/11 16:25	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			12/07/11 16:25	1

Surrogate	%Recovery	MB MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	102		70 - 130		12/07/11 16:25	1
Dibromofluoromethane	96		70 - 130		12/07/11 16:25	1
Toluene-d8 (Surr)	100		70 - 130		12/07/11 16:25	1

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Lab Sample ID: LCS 680-223045/26

Matrix: Water

Analysis Batch: 223045

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS LCS Result Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	50.0	49.0	ug/L		98	70 - 130
Chlorobenzene	50.0	47.2	ug/L		94	70 - 130
1,2-Dichlorobenzene	50.0	48.5	ug/L		97	70 - 130
1,3-Dichlorobenzene	50.0	48.9	ug/L		98	70 - 130
1,4-Dichlorobenzene	50.0	48.0	ug/L		96	70 - 130

Surrogate	%Recovery	LCS LCS Qualifier	Limits
4-Bromofluorobenzene	96		70 - 130
Dibromofluoromethane	101		70 - 130
Toluene-d8 (Surr)	98		70 - 130

Lab Sample ID: LCSD 680-223045/14

Matrix: Water

Analysis Batch: 223045

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD LCSD Result Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	50.0	51.7	ug/L		103	70 - 130	6	30
Chlorobenzene	50.0	50.1	ug/L		100	70 - 130	6	30
1,2-Dichlorobenzene	50.0	51.1	ug/L		102	70 - 130	5	30
1,3-Dichlorobenzene	50.0	51.7	ug/L		103	70 - 130	6	30
1,4-Dichlorobenzene	50.0	50.4	ug/L		101	70 - 130	5	30

Surrogate	%Recovery	LCSD LCSD Qualifier	Limits
4-Bromofluorobenzene	102		70 - 130
Dibromofluoromethane	106		70 - 130
Toluene-d8 (Surr)	103		70 - 130

Lab Sample ID: MB 680-223160/6

Matrix: Water

Analysis Batch: 223160

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	Result	MB MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.0	U	1.0		ug/L			12/09/11 11:21	1
Chlorobenzene	1.0	U	1.0		ug/L			12/09/11 11:21	1

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# QC Sample Results

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

## Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 680-223160/6  
Matrix: Water  
Analysis Batch: 223160

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			12/09/11 11:21	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			12/09/11 11:21	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			12/09/11 11:21	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	97		70 - 130					12/09/11 11:21	1
Dibromofluoromethane	95		70 - 130					12/09/11 11:21	1
Toluene-d8 (Surr)	96		70 - 130					12/09/11 11:21	1

Lab Sample ID: LCS 680-223160/3  
Matrix: Water  
Analysis Batch: 223160

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	50.0	49.3		ug/L		99	70 - 130
Chlorobenzene	50.0	49.2		ug/L		98	70 - 130
1,2-Dichlorobenzene	50.0	38.0		ug/L		76	70 - 130
1,3-Dichlorobenzene	50.0	42.7		ug/L		85	70 - 130
1,4-Dichlorobenzene	50.0	40.0		ug/L		80	70 - 130
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene	97		70 - 130				
Dibromofluoromethane	103		70 - 130				
Toluene-d8 (Surr)	97		70 - 130				

Lab Sample ID: LCSD 680-223160/4  
Matrix: Water  
Analysis Batch: 223160

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	50.0	49.7		ug/L		99	70 - 130	1	30
Chlorobenzene	50.0	49.9		ug/L		100	70 - 130	2	30
1,2-Dichlorobenzene	50.0	39.5		ug/L		79	70 - 130	4	30
1,3-Dichlorobenzene	50.0	43.0		ug/L		86	70 - 130	1	30
1,4-Dichlorobenzene	50.0	40.5		ug/L		81	70 - 130	1	30
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
4-Bromofluorobenzene	95		70 - 130						
Dibromofluoromethane	104		70 - 130						
Toluene-d8 (Surr)	98		70 - 130						

Lab Sample ID: MB 680-223259/4  
Matrix: Water  
Analysis Batch: 223259

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.0	U	1.0		ug/L			12/11/11 15:04	1
Chlorobenzene	1.0	U	1.0		ug/L			12/11/11 15:04	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			12/11/11 15:04	1



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# QC Sample Results

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

## Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 680-223259/4  
Matrix: Water  
Analysis Batch: 223259

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			12/11/11 15:04	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			12/11/11 15:04	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	99		70 - 130					12/11/11 15:04	1
Dibromofluoromethane	87		70 - 130					12/11/11 15:04	1
Toluene-d8 (Surr)	108		70 - 130					12/11/11 15:04	1

Lab Sample ID: LCS 680-223259/27  
Matrix: Water  
Analysis Batch: 223259

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	50.0	49.6		ug/L		99	70 - 130
Chlorobenzene	50.0	47.8		ug/L		96	70 - 130
1,2-Dichlorobenzene	50.0	44.6		ug/L		89	70 - 130
1,3-Dichlorobenzene	50.0	46.0		ug/L		92	70 - 130
1,4-Dichlorobenzene	50.0	45.8		ug/L		92	70 - 130
Surrogate	%Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene	98		70 - 130				
Dibromofluoromethane	102		70 - 130				
Toluene-d8 (Surr)	99		70 - 130				

Lab Sample ID: LCSD 680-223259/26  
Matrix: Water  
Analysis Batch: 223259

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	50.0	50.8		ug/L		102	70 - 130	2	30
Chlorobenzene	50.0	48.9		ug/L		98	70 - 130	2	30
1,2-Dichlorobenzene	50.0	45.9		ug/L		92	70 - 130	3	30
1,3-Dichlorobenzene	50.0	47.7		ug/L		95	70 - 130	4	30
1,4-Dichlorobenzene	50.0	47.0		ug/L		94	70 - 130	3	30
Surrogate	%Recovery	LCSD Qualifier	Limits						
4-Bromofluorobenzene	101		70 - 130						
Dibromofluoromethane	99		70 - 130						
Toluene-d8 (Surr)	103		70 - 130						

Lab Sample ID: MB 680-223268/6  
Matrix: Water  
Analysis Batch: 223268

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.0	U	1.0		ug/L			12/10/11 14:40	1
Chlorobenzene	1.0	U	1.0		ug/L			12/10/11 14:40	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			12/10/11 14:40	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			12/10/11 14:40	1

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# QC Sample Results

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

## Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 680-223268/6

Matrix: Water

Analysis Batch: 223268

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			12/10/11 14:40	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	98		70 - 130		12/10/11 14:40	1
Dibromofluoromethane	93		70 - 130		12/10/11 14:40	1
Toluene-d8 (Surr)	98		70 - 130		12/10/11 14:40	1

Lab Sample ID: LCS 680-223268/3

Matrix: Water

Analysis Batch: 223268

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	50.0	50.8		ug/L		102	70 - 130
Chlorobenzene	50.0	49.6		ug/L		99	70 - 130
1,2-Dichlorobenzene	50.0	39.6		ug/L		60	70 - 130
1,3-Dichlorobenzene	50.0	42.9		ug/L		86	70 - 130
1,4-Dichlorobenzene	50.0	43.0		ug/L		86	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene	94		70 - 130
Dibromofluoromethane	109		70 - 130
Toluene-d8 (Surr)	100		70 - 130

Lab Sample ID: LCSD 680-223268/4

Matrix: Water

Analysis Batch: 223268

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	50.0	50.5		ug/L		101	70 - 130	1	30
Chlorobenzene	50.0	49.3		ug/L		99	70 - 130	1	30
1,2-Dichlorobenzene	50.0	38.8		ug/L		78	70 - 130	2	30
1,3-Dichlorobenzene	50.0	41.4		ug/L		83	70 - 130	4	30
1,4-Dichlorobenzene	50.0	39.2		ug/L		78	70 - 130	9	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene	96		70 - 130
Dibromofluoromethane	107		70 - 130
Toluene-d8 (Surr)	99		70 - 130

Lab Sample ID: MB 680-223412/6

Matrix: Water

Analysis Batch: 223412

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.0	U	1.0		ug/L			12/13/11 12:30	1
Chlorobenzene	1.0	U	1.0		ug/L			12/13/11 12:30	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			12/13/11 12:30	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			12/13/11 12:30	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			12/13/11 12:30	1

## QC Sample Results

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

### Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 680-223412/6  
Matrix: Water  
Analysis Batch: 223412

Client Sample ID: Method Blank  
Prep Type: Total/NA

Surrogate	MB MB %Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	102		70 - 130		12/13/11 12:30	1
Dibromofluoromethane	106		70 - 130		12/13/11 12:30	1
Toluene-d8 (Surr)	101		70 - 130		12/13/11 12:30	1

Lab Sample ID: LCS 680-223412/3  
Matrix: Water  
Analysis Batch: 223412

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS LCS Result Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	50.0	49.2	ug/L		98	70 - 130
Chlorobenzene	50.0	52.4	ug/L		105	70 - 130
1,2-Dichlorobenzene	50.0	50.7	ug/L		101	70 - 130
1,3-Dichlorobenzene	50.0	50.2	ug/L		100	70 - 130
1,4-Dichlorobenzene	50.0	50.8	ug/L		101	70 - 130

Surrogate	LCS LCS %Recovery	Qualifier	Limits
4-Bromofluorobenzene	101		70 - 130
Dibromofluoromethane	109		70 - 130
Toluene-d8 (Surr)	98		70 - 130

Lab Sample ID: LCSD 680-223412/4  
Matrix: Water  
Analysis Batch: 223412

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA

Analyte	Spike Added	LCSD LCSD Result Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Benzene	50.0	46.6	ug/L		93	70 - 130	5	30
Chlorobenzene	50.0	48.5	ug/L		97	70 - 130	8	30
1,2-Dichlorobenzene	50.0	47.8	ug/L		96	70 - 130	6	30
1,3-Dichlorobenzene	50.0	46.6	ug/L		93	70 - 130	8	30
1,4-Dichlorobenzene	50.0	47.5	ug/L		95	70 - 130	8	30

Surrogate	LCSD LCSD %Recovery	Qualifier	Limits
4-Bromofluorobenzene	94		70 - 130
Dibromofluoromethane	99		70 - 130
Toluene-d8 (Surr)	93		70 - 130

Lab Sample ID: 680-74799-1 MS  
Matrix: Water  
Analysis Batch: 223412

Client Sample ID: CPA-C-DHU-1111  
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS MS Result Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	2800		25000	27300	ug/L		98	70 - 130
Chlorobenzene	33000		25000	53900	ug/L		84	70 - 130
1,2-Dichlorobenzene	5000		25000	29200	ug/L		97	70 - 130
1,3-Dichlorobenzene	520		25000	24600	ug/L		96	70 - 130
1,4-Dichlorobenzene	11000		25000	35000	ug/L		96	70 - 130

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# QC Sample Results

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

## Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 680-74799-1 MS  
Matrix: Water  
Analysis Batch: 223412

Client Sample ID: CPA-C-DHU-1111  
Prep Type: Total/NA

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene	96		70 - 130
Dibromofluoromethane	100		70 - 130
Toluene-d8 (Surr)	98		70 - 130

Lab Sample ID: MB 680-223630/7  
Matrix: Water  
Analysis Batch: 223630

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.0	U	1.0		ug/L			12/14/11 11:53	1
Chlorobenzene	1.0	U	1.0		ug/L			12/14/11 11:53	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			12/14/11 11:53	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			12/14/11 11:53	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			12/14/11 11:53	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	95		70 - 130		12/14/11 11:53	1
Dibromofluoromethane	89		70 - 130		12/14/11 11:53	1
Toluene-d8 (Surr)	111		70 - 130		12/14/11 11:53	1

Lab Sample ID: LCS 680-223630/4  
Matrix: Water  
Analysis Batch: 223630

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec.
	Added	Result	Qualifier			Limits	
Benzene	50.0	51.8		ug/L		104	70 - 130
Chlorobenzene	50.0	51.0		ug/L		102	70 - 130
1,2-Dichlorobenzene	50.0	54.2		ug/L		108	70 - 130
1,3-Dichlorobenzene	50.0	53.5		ug/L		107	70 - 130
1,4-Dichlorobenzene	50.0	52.9		ug/L		106	70 - 130

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene	107		70 - 130
Dibromofluoromethane	96		70 - 130
Toluene-d8 (Surr)	103		70 - 130

Lab Sample ID: LCSD 680-223630/5  
Matrix: Water  
Analysis Batch: 223630

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA

Analyte	Spike	LCSD	LCSD	Unit	D	%Rec	%Rec.	RPD
	Added	Result	Qualifier			Limits		Limit
Benzene	50.0	50.0		ug/L		100	70 - 130	4 30
Chlorobenzene	50.0	51.4		ug/L		103	70 - 130	1 30
1,2-Dichlorobenzene	50.0	53.8		ug/L		108	70 - 130	1 30
1,3-Dichlorobenzene	50.0	50.9		ug/L		102	70 - 130	5 30
1,4-Dichlorobenzene	50.0	50.8		ug/L		102	70 - 130	4 30

# QC Sample Results

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

## Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 680-223630/5  
Matrix: Water  
Analysis Batch: 223630

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene	106		70 - 130
Dibromofluoromethane	100		70 - 130
Toluene-d8 (Surr)	103		70 - 130

Lab Sample ID: MB 680-223702/7  
Matrix: Water  
Analysis Batch: 223702

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Benzene	1.0	U	1.0		ug/L			12/14/11 13:35	1
Chlorobenzene	1.0	U	1.0		ug/L			12/14/11 13:35	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			12/14/11 13:35	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			12/14/11 13:35	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			12/14/11 13:35	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene	103		70 - 130		12/14/11 13:35	1
Dibromofluoromethane	105		70 - 130		12/14/11 13:35	1
Toluene-d8 (Surr)	102		70 - 130		12/14/11 13:35	1

Lab Sample ID: LCS 680-223702/4  
Matrix: Water  
Analysis Batch: 223702

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec. Limits
		Result	Qualifier				
Benzene	50.0	52.7		ug/L		105	70 - 130
Chlorobenzene	50.0	52.5		ug/L		105	70 - 130
1,2-Dichlorobenzene	50.0	53.0		ug/L		106	70 - 130
1,3-Dichlorobenzene	50.0	52.4		ug/L		105	70 - 130
1,4-Dichlorobenzene	50.0	53.0		ug/L		106	70 - 130

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene	103		70 - 130
Dibromofluoromethane	109		70 - 130
Toluene-d8 (Surr)	102		70 - 130

Lab Sample ID: LCSD 680-223702/5  
Matrix: Water  
Analysis Batch: 223702

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA

Analyte	Spike Added	LCSD LCSD		Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
		Result	Qualifier						
Benzene	50.0	48.1		ug/L		96	70 - 130	9	30
Chlorobenzene	50.0	47.5		ug/L		95	70 - 130	10	30
1,2-Dichlorobenzene	50.0	47.5		ug/L		95	70 - 130	11	30
1,3-Dichlorobenzene	50.0	47.3		ug/L		95	70 - 130	10	30
1,4-Dichlorobenzene	50.0	47.3		ug/L		95	70 - 130	11	30

# QC Sample Results

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

## Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 680-223702/5  
Matrix: Water  
Analysis Batch: 223702

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene	93		70 - 130
Dibromofluoromethane	95		70 - 130
Toluene-d8 (Surr)	95		70 - 130

Lab Sample ID: 680-74799-1 MSD  
Matrix: Water  
Analysis Batch: 223702

Client Sample ID: CPA-C-DHU-1111  
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	2800		25000	22500		ug/L		79	70 - 130	19	30
Chlorobenzene	33000		25000	22300	F	ug/L		-42	70 - 130	83	30
1,2-Dichlorobenzene	5000		25000	22000	F	ug/L		68	70 - 130	28	30
1,3-Dichlorobenzene	520		25000	22000		ug/L		66	70 - 130	11	30
1,4-Dichlorobenzene	11000		25000	21400	F	ug/L		41	70 - 130	48	30

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene	86		70 - 130
Dibromofluoromethane	92		70 - 130
Toluene-d8 (Surr)	87		70 - 130

Lab Sample ID: MB 680-223744/2  
Matrix: Water  
Analysis Batch: 223744

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.0	U	1.0		ug/L			12/15/11 12:21	1
Chlorobenzene	1.0	U	1.0		ug/L			12/15/11 12:21	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			12/15/11 12:21	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			12/15/11 12:21	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			12/15/11 12:21	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	100		70 - 130		12/15/11 12:21	1
Dibromofluoromethane	101		70 - 130		12/15/11 12:21	1
Toluene-d8 (Surr)	102		70 - 130		12/15/11 12:21	1

Lab Sample ID: LCS 680-223744/6  
Matrix: Water  
Analysis Batch: 223744

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	50.0	53.3		ug/L		107	70 - 130
Chlorobenzene	50.0	54.1		ug/L		108	70 - 130
1,2-Dichlorobenzene	50.0	52.6		ug/L		105	70 - 130
1,3-Dichlorobenzene	50.0	51.8		ug/L		104	70 - 130
1,4-Dichlorobenzene	50.0	52.7		ug/L		105	70 - 130

## QC Sample Results

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

### Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 680-223744/6  
Matrix: Water  
Analysis Batch: 223744

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene	104		70 - 130
Dibromofluoromethane	117		70 - 130
Toluene-d8 (Surr)	107		70 - 130

Lab Sample ID: LCSD 680-223744/7  
Matrix: Water  
Analysis Batch: 223744

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	50.0	47.4		ug/L		95	70 - 130	12	30
Chlorobenzene	50.0	48.4		ug/L		97	70 - 130	11	30
1,2-Dichlorobenzene	50.0	47.3		ug/L		95	70 - 130	11	30
1,3-Dichlorobenzene	50.0	46.4		ug/L		93	70 - 130	11	30
1,4-Dichlorobenzene	50.0	47.6		ug/L		95	70 - 130	10	30

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene	93		70 - 130
Dibromofluoromethane	102		70 - 130
Toluene-d8 (Surr)	96		70 - 130

### Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 680-222417/4  
Matrix: Water  
Analysis Batch: 222417

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	1.1	U	1.1		ug/L			12/01/11 11:22	1
Ethylene	1.0	U	1.0		ug/L			12/01/11 11:22	1
Methane	0.58	U	0.58		ug/L			12/01/11 11:22	1

Lab Sample ID: LCS 680-222417/2  
Matrix: Water  
Analysis Batch: 222417

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethane	282	340		ug/L		120	75 - 125
Ethylene	271	332		ug/L		123	75 - 125
Methane	153	190		ug/L		125	75 - 125

Lab Sample ID: LCSD 680-222417/5  
Matrix: Water  
Analysis Batch: 222417

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethane	282	325		ug/L		115	75 - 125	4	30
Ethylene	271	332		ug/L		123	75 - 125	0	30
Methane	153	181		ug/L		118	75 - 125	5	30

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## QC Sample Results

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

### Method: RSK-175 - Dissolved Gases (GC) (Continued)

Lab Sample ID: MB 680-222418/4  
Matrix: Water  
Analysis Batch: 222418

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	0.58	U	0.58		ug/L			12/01/11 11:22	1

Lab Sample ID: LCS 680-222418/2  
Matrix: Water  
Analysis Batch: 222418

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane	1910	1690		ug/L		88	75 - 125

Lab Sample ID: LCSD 680-222418/3  
Matrix: Water  
Analysis Batch: 222418

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Methane	1910	1820		ug/L		95	75 - 125	7	30

Lab Sample ID: MB 680-222741/4  
Matrix: Water  
Analysis Batch: 222741

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	1.1	U	1.1		ug/L			12/05/11 16:05	1
Ethylene	1.0	U	1.0		ug/L			12/05/11 16:05	1
Methane	0.58	U	0.58		ug/L			12/05/11 16:05	1

Lab Sample ID: LCS 680-222741/2  
Matrix: Water  
Analysis Batch: 222741

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethane	282	304		ug/L		108	75 - 125
Ethylene	271	302		ug/L		111	75 - 125
Methane	153	171		ug/L		112	75 - 125

Lab Sample ID: LCSD 680-222741/3  
Matrix: Water  
Analysis Batch: 222741

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Ethane	282	311		ug/L		110	75 - 125	2	30
Ethylene	271	304		ug/L		112	75 - 125	1	30
Methane	153	175		ug/L		115	75 - 125	2	30

Lab Sample ID: MB 680-222742/4  
Matrix: Water  
Analysis Batch: 222742

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	0.58	U	0.58		ug/L			12/05/11 16:05	1

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## QC Sample Results

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

### Method: RSK-175 - Dissolved Gases (GC) (Continued)

Lab Sample ID: LCS 680-222742/2

Matrix: Water

Analysis Batch: 222742

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane	1910	1490		ug/L		78	75 - 125

Lab Sample ID: LCSD 680-222742/3

Matrix: Water

Analysis Batch: 222742

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methane	1910	1790		ug/L		94	75 - 125	18	30

Lab Sample ID: MB 680-223684/2

Matrix: Water

Analysis Batch: 223684

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	0.58	U	0.58		ug/L			12/14/11 21:36	1

Lab Sample ID: LCS 680-223684/3

Matrix: Water

Analysis Batch: 223684

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane	1910	1680		ug/L		88	75 - 125

Lab Sample ID: LCSD 680-223684/4

Matrix: Water

Analysis Batch: 223684

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methane	1910	1770		ug/L		92	75 - 125	5	30

Lab Sample ID: MB 680-223685/1

Matrix: Water

Analysis Batch: 223685

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	1.1	U	1.1		ug/L			12/14/11 21:36	1
Ethylene	1.0	U	1.0		ug/L			12/14/11 21:36	1
Methane	0.58	U	0.58		ug/L			12/14/11 21:36	1

Lab Sample ID: LCS 680-223685/3

Matrix: Water

Analysis Batch: 223685

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethane	282	283		ug/L		93	75 - 125
Ethylene	271	256		ug/L		94	75 - 125
Methane	153	147		ug/L		96	75 - 125

# QC Sample Results

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

## Method: RSK-175 - Dissolved Gases (GC) (Continued)

Lab Sample ID: LCSD 680-223685/4

Matrix: Water

Analysis Batch: 223685

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethane	282	312		ug/L		111	75 - 125	17	30
Ethylene	271	297		ug/L		110	75 - 125	15	30
Methane	153	173		ug/L		113	75 - 125	16	30

## Method: 6010B - Metals (ICP)

Lab Sample ID: MB 680-222293/1-A

Matrix: Water

Analysis Batch: 222746

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 222293

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.050	U	0.050		mg/L		12/01/11 08:30	12/05/11 19:14	1
Iron, Dissolved	0.050	U	0.050		mg/L		12/01/11 08:30	12/05/11 19:14	1
Manganese	0.010	U	0.010		mg/L		12/01/11 08:30	12/05/11 19:14	1
Manganese, Dissolved	0.010	U	0.010		mg/L		12/01/11 08:30	12/05/11 19:14	1

Lab Sample ID: LCS 680-222293/2-A

Matrix: Water

Analysis Batch: 222746

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 222293

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	1.00	1.06		mg/L		106	75 - 125
Iron, Dissolved	1.00	1.06		mg/L		106	75 - 125
Manganese	0.500	0.534		mg/L		107	75 - 125
Manganese, Dissolved	0.500	0.534		mg/L		107	75 - 125

Lab Sample ID: MB 680-222772/1-A

Matrix: Water

Analysis Batch: 222959

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 222772

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.050	U	0.050		mg/L		12/06/11 13:12	12/07/11 20:04	1
Iron, Dissolved	0.050	U	0.050		mg/L		12/06/11 13:12	12/07/11 20:04	1
Manganese	0.010	U	0.010		mg/L		12/06/11 13:12	12/07/11 20:04	1
Manganese, Dissolved	0.010	U	0.010		mg/L		12/06/11 13:12	12/07/11 20:04	1

Lab Sample ID: LCS 680-222772/2-A

Matrix: Water

Analysis Batch: 222959

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 222772

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	1.00	0.994		mg/L		99	75 - 125
Iron, Dissolved	1.00	0.994		mg/L		99	75 - 125
Manganese	0.500	0.499		mg/L		100	75 - 125
Manganese, Dissolved	0.500	0.499		mg/L		100	75 - 125

## QC Sample Results

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

### Method: 6010B - Metals (ICP) (Continued)

Lab Sample ID: MB 680-222847/1-A  
Matrix: Water  
Analysis Batch: 222959

Client Sample ID: Method Blank  
Prep Type: Total Recoverable  
Prep Batch: 222847

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.050	U	0.050		mg/L		12/07/11 09:59	12/08/11 03:09	1
Iron, Dissolved	0.050	U	0.050		mg/L		12/07/11 09:59	12/08/11 03:09	1
Manganese	0.010	U	0.010		mg/L		12/07/11 09:59	12/08/11 03:09	1
Manganese, Dissolved	0.010	U	0.010		mg/L		12/07/11 09:59	12/08/11 03:09	1

Lab Sample ID: LCS 680-222847/2-A  
Matrix: Water  
Analysis Batch: 222959

Client Sample ID: Lab Control Sample  
Prep Type: Total Recoverable  
Prep Batch: 222847

Analyte	Spike Added	Result	Qualifier	Unit	D	%Rec	Limits
Iron	1.00	0.929		mg/L		93	75 - 125
Iron, Dissolved	1.00	0.929		mg/L		93	75 - 125
Manganese	0.500	0.472		mg/L		94	75 - 125
Manganese, Dissolved	0.500	0.472		mg/L		94	75 - 125

Lab Sample ID: MB 680-222861/1-A  
Matrix: Water  
Analysis Batch: 223145

Client Sample ID: Method Blank  
Prep Type: Total Recoverable  
Prep Batch: 222861

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.050	U	0.050		mg/L		12/07/11 10:45	12/08/11 18:36	1
Iron, Dissolved	0.050	U	0.050		mg/L		12/07/11 10:45	12/08/11 18:36	1
Manganese	0.010	U	0.010		mg/L		12/07/11 10:45	12/08/11 18:36	1
Manganese, Dissolved	0.010	U	0.010		mg/L		12/07/11 10:45	12/08/11 18:36	1

Lab Sample ID: LCS 680-222861/2-A  
Matrix: Water  
Analysis Batch: 223145

Client Sample ID: Lab Control Sample  
Prep Type: Total Recoverable  
Prep Batch: 222861

Analyte	Spike Added	Result	Qualifier	Unit	D	%Rec	Limits
Iron	1.00	1.10		mg/L		110	75 - 125
Iron, Dissolved	1.00	1.10		mg/L		110	75 - 125
Manganese	0.500	0.542		mg/L		108	75 - 125
Manganese, Dissolved	0.500	0.542		mg/L		108	75 - 125

### Method: 310.1 - Alkalinity

Lab Sample ID: MB 680-222299/1  
Matrix: Water  
Analysis Batch: 222299

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	5.0	U	5.0	mg/L			11/30/11 16:58	1
Carbon Dioxide, Free	5.0	U	5.0	mg/L			11/30/11 16:58	1

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# QC Sample Results

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

## Method: 310.1 - Alkalinity (Continued)

Lab Sample ID: LCS 680-222299/2  
Matrix: Water  
Analysis Batch: 222299

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	183	163		mg/L		99	80 - 120

Lab Sample ID: LCSD 680-222299/16  
Matrix: Water  
Analysis Batch: 222299

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Alkalinity	183	164		mg/L		90	80 - 120	1	30

Lab Sample ID: 680-74713-5 DU  
Matrix: Water  
Analysis Batch: 222299

Client Sample ID: CPA-A-MHU-1111  
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Alkalinity	730		716		mg/L		2	30
Carbon Dioxide, Free	20		19.1		mg/L		2	30

Lab Sample ID: MB 680-222419/5  
Matrix: Water  
Analysis Batch: 222419

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	5.0	U	5.0		mg/L			12/01/11 17:17	1
Carbon Dioxide, Free	5.0	U	5.0		mg/L			12/01/11 17:17	1

Lab Sample ID: LCS 680-222419/7  
Matrix: Water  
Analysis Batch: 222419

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	183	163		mg/L		89	80 - 120

Lab Sample ID: LCSD 680-222419/30  
Matrix: Water  
Analysis Batch: 222419

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Alkalinity	183	176		mg/L		96	80 - 120	7	30

Lab Sample ID: 680-74799-8 DU  
Matrix: Water  
Analysis Batch: 222419

Client Sample ID: CPA-B-DHU-1111  
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	OU Result	OU Qualifier	Unit	D	RPD	RPD Limit
Alkalinity	510		523		mg/L		2	30
Carbon Dioxide, Free	26		27.2		mg/L		4	30

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# QC Sample Results

Client: Solutia Inc.  
Project/Site: WGGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

## Method: 310.1 - Alkalinity (Continued)

Lab Sample ID: MB 680-222730/5

Matrix: Water

Analysis Batch: 222730

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB	MB	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Alkalinity	5.0	U	5.0		mg/L			12/03/11 14:29	1
Carbon Dioxide, Free	5.0	U	5.0		mg/L			12/03/11 14:29	1

Lab Sample ID: LCS 680-222730/6

Matrix: Water

Analysis Batch: 222730

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec.
	Added	Result	Qualifier				Limits
Alkalinity	183	163		mg/L		89	80 - 120

Lab Sample ID: LCSD 680-222730/32

Matrix: Water

Analysis Batch: 222730

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike	LCSD	LCSD	Unit	D	%Rec	%Rec.	RPD
	Added	Result	Qualifier				Limits	Limit
Alkalinity	183	164		mg/L		89	80 - 120	0 30

## Method: 325.2 - Chloride

Lab Sample ID: MB 680-222364/18

Matrix: Water

Analysis Batch: 222364

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Chloride	1.0	U	1.0		mg/L			12/01/11 12:48	1

Lab Sample ID: LCS 680-222364/2

Matrix: Water

Analysis Batch: 222364

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec.
	Added	Result	Qualifier				Limits
Chloride	50.0	50.8		mg/L		102	85 - 115

Lab Sample ID: 680-74713-3 DU

Matrix: Water

Analysis Batch: 222364

Client Sample ID: CPA-A-DMU-1111

Prep Type: Total/NA

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	RPD
	Result	Qualifier	Result	Qualifier				Limit
Chloride	54		53.6		mg/L		0.07	30

Lab Sample ID: 680-74799-1 MS

Matrix: Water

Analysis Batch: 224230

Client Sample ID: CPA-C-DHU-1111

Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.
	Result	Qualifier	Added	Result	Qualifier				Limits
Chloride	69		100	117	F	mg/L		48	85 - 115

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TestAmerica Savannah

## QC Sample Results

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

### Method: 325.2 - Chloride (Continued)

Lab Sample ID: 680-74799-1 MSD

Matrix: Water

Analysis Batch: 224230

Client Sample ID: CPA-C-DHU-1111

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Chloride	69		100	117	F	mg/L		48	85 - 115	0	30

### Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 680-222123/14

Matrix: Water

Analysis Batch: 222123

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.050	U	0.050		mg/L			11/29/11 16:08	1

Lab Sample ID: LCS 680-222123/15

Matrix: Water

Analysis Batch: 222123

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	0.497	0.496		mg/L		100	90 - 110
Nitrate Nitrite as N	0.998	0.994		mg/L		100	90 - 110
Nitrite as N	0.502	0.498		mg/L		99	90 - 110

Lab Sample ID: 680-74713-1 MS

Matrix: Water

Analysis Batch: 222123

Client Sample ID: CPA-A-SHU-1111

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	0.050	U	0.497	0.491		mg/L		99	90 - 110
Nitrate Nitrite as N	0.050		0.998	1.00		mg/L		101	90 - 110
Nitrite as N	0.050		0.502	0.513		mg/L		102	90 - 110

Lab Sample ID: 680-74713-1 MSD

Matrix: Water

Analysis Batch: 222123

Client Sample ID: CPA-A-SHU-1111

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Nitrate as N	0.050	U	0.497	0.488		mg/L		98	90 - 110	1	10
Nitrate Nitrite as N	0.050		0.998	1.00		mg/L		100	90 - 110	0	10
Nitrite as N	0.050		0.502	0.514		mg/L		102	90 - 110	0	10

Lab Sample ID: MB 680-222276/14

Matrix: Water

Analysis Batch: 222276

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.050	U	0.050		mg/L			11/30/11 16:23	1

Lab Sample ID: LCS 680-222276/15

Matrix: Water

Analysis Batch: 222276

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	0.497	0.504		mg/L		102	90 - 110

## QC Sample Results

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

### Method: 353.2 - Nitrogen, Nitrate-Nitrite (Continued)

Lab Sample ID: LCS 680-222276/15  
Matrix: Water  
Analysis Batch: 222276

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits	
							90 - 110	90 - 110
Nitrate Nitrite as N	0.998	0.990		mg/L		99		
Nitrite as N	0.502	0.485		mg/L		97		

Lab Sample ID: 680-74746-5 DU  
Matrix: Water  
Analysis Batch: 222276

Client Sample ID: CPA-D-DHU-1111  
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Nitrate as N	0.076		0.0752		mg/L		1	10

Lab Sample ID: MB 680-222595/14  
Matrix: Water  
Analysis Batch: 222595

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.050	U	0.050		mg/L			12/02/11 15:39	1

Lab Sample ID: LCS 680-222595/15  
Matrix: Water  
Analysis Batch: 222595

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits	
							90 - 110	90 - 110
Nitrate as N	0.497	0.505		mg/L		102		
Nitrate Nitrite as N	0.998	0.998		mg/L		100		
Nitrite as N	0.502	0.494		mg/L		98		

Lab Sample ID: MB 680-222597/14  
Matrix: Water  
Analysis Batch: 222597

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.050	U	0.050		mg/L			12/01/11 15:35	1

Lab Sample ID: LCS 680-222597/15  
Matrix: Water  
Analysis Batch: 222597

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits	
							90 - 110	90 - 110
Nitrate as N	0.497	0.505		mg/L		102		
Nitrate Nitrite as N	0.998	1.00		mg/L		100		
Nitrite as N	0.502	0.499		mg/L		99		

### Method: 375.4 - Sulfate

Lab Sample ID: MB 680-223009/1  
Matrix: Water  
Analysis Batch: 223009

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	5.0	U	5.0		mg/L			12/08/11 11:23	1

## QC Sample Results

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

### Method: 375.4 - Sulfate (Continued)

Lab Sample ID: LCS 680-223009/2

Matrix: Water

Analysis Batch: 223009

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	20.0	20.1		mg/L		101	75 - 125

Lab Sample ID: 680-74799-1 DU

Matrix: Water

Analysis Batch: 223009

Client Sample ID: CPA-C-DHU-1111

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Sulfate	66		67.1		mg/L		1	30

### Method: 415.1 - DOC

Lab Sample ID: 680-74713-6 DU

Matrix: Water

Analysis Batch: 222599

Client Sample ID: CPA-A-MHU-F(0.2)-1111

Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Dissolved Organic Carbon	7.0		6.90		mg/L		2	30

Lab Sample ID: MB 680-224100/1

Matrix: Water

Analysis Batch: 224100

Client Sample ID: Method Blank

Prep Type: Dissolved

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	1.0	U	1.0		mg/L			12/15/11 18:27	1

Lab Sample ID: LCS 680-224100/2

Matrix: Water

Analysis Batch: 224100

Client Sample ID: Lab Control Sample

Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	20.0	19.4		mg/L		97	80 - 120

Lab Sample ID: 680-74799-2 DU

Matrix: Water

Analysis Batch: 224100

Client Sample ID: CPA-C-DHU-F(0.2)1111

Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Dissolved Organic Carbon	23		22.6		mg/L		3	30

### Method: 415.1 - TOC

Lab Sample ID: MB 680-223078/6

Matrix: Water

Analysis Batch: 223078

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	1.0	U	1.0		mg/L			12/07/11 12:31	1



*[Handwritten signature]*

## QC Sample Results

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

### Method: 415.1 - TOC (Continued)

Lab Sample ID: LCS 680-223078/7

Matrix: Water

Analysis Batch: 223078

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	20.0	19.1		mg/L		96	80 - 120

Lab Sample ID: 680-74713-1 MS

Matrix: Water

Analysis Batch: 223078

Client Sample ID: CPA-A-SHU-1111

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	31		20.0	49.9		mg/L		96	80 - 120

Lab Sample ID: 680-74713-1 MSD

Matrix: Water

Analysis Batch: 223078

Client Sample ID: CPA-A-SHU-1111

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Total Organic Carbon	31		20.0	49.9		mg/L		96	80 - 120	0	25

Lab Sample ID: MB 680-225734/2

Matrix: Water

Analysis Batch: 225734

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	1.0	U	1.0		mg/L			01/09/12 11:17	1

Lab Sample ID: LCS 680-225734/4

Matrix: Water

Analysis Batch: 225734

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	20.0	20.2		mg/L		101	80 - 120

Lab Sample ID: MB 680-226116/2

Matrix: Water

Analysis Batch: 226116

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	1.0	U	1.0		mg/L			01/13/12 10:50	1

Lab Sample ID: LCS 680-226116/4

Matrix: Water

Analysis Batch: 226116

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	O	%Rec	%Rec. Limits
Total Organic Carbon	20.0	19.3		mg/L		96	80 - 120

Lab Sample ID: LCSD 680-226116/5

Matrix: Water

Analysis Batch: 226116

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	O	%Rec	%Rec. Limits	RPD	Limit
Total Organic Carbon	20.0	19.4		mg/L		97	80 - 120	1	25



## QC Association Summary

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

### GC/MS VOA

#### Analysis Batch: 222917

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-74713-1	CPA-A-SHU-1111	Total/NA	Water	8260B	
680-74713-3	CPA-A-DMU-1111	Total/NA	Water	8260B	
680-74713-7	4Q11SUPP Trip Blank #1	Total/NA	Water	8260B	
680-74862-6	4Q11 CPA Trip Blank #4	Total/NA	Water	8260B	
LCS 680-222917/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-222917/5	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 680-222917/7	Method Blank	Total/NA	Water	8260B	

#### Analysis Batch: 223045

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-74713-5	CPA-A-MHU-1111	Total/NA	Water	8260B	
LCS 680-223045/26	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-223045/14	Lab Control Sample Dup	Total/NA	Water	8280B	
MB 680-223045/16	Method Blank	Total/NA	Water	8260B	

#### Analysis Batch: 223160

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-74746-1	CPA-D-SHU-1111	Total/NA	Water	8260B	
680-74746-5	CPA-D-DHU-1111	Total/NA	Water	8260B	
680-74746-7	CPA-D-SHU-1111-AD	Total/NA	Water	8260B	
LCS 680-223160/3	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-223160/4	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 680-223160/6	Method Blank	Total/NA	Water	8260B	

#### Analysis Batch: 223259

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-74799-5	CPA-C-SHU-1111-EB	Total/NA	Water	8260B	
680-74799-10	4Q11 CPA Trip Blank #3	Total/NA	Water	8260B	
LCS 680-223259/27	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-223259/26	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 680-223259/4	Method Blank	Total/NA	Water	8260B	

#### Analysis Batch: 223268

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-74746-3	CPA-D-MHU-1111	Total/NA	Water	8260B	
LCS 680-223268/3	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-223268/4	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 680-223268/6	Method Blank	Total/NA	Water	8260B	

#### Analysis Batch: 223412

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-74799-1	CPA-C-DHU-1111	Total/NA	Water	8260B	
680-74799-1 MS	CPA-C-DHU-1111	Total/NA	Water	8260B	
680-74799-3	CPA-C-MHU-1111	Total/NA	Water	8260B	
680-74799-6	CPA-C-SHU-1111	Total/NA	Water	8260B	
680-74799-8	CPA-B-DHU-1111	Total/NA	Water	8260B	
LCS 680-223412/3	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-223412/4	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 680-223412/6	Method Blank	Total/NA	Water	8260B	

JAN 13 2012

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## QC Association Summary

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

### GC/MS VOA (Continued)

#### Analysis Batch: 223630

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-74862-1	CPA-B-MHU-1111	Total/NA	Water	8260B	
680-74862-4	CPA-B-SHU-1111-AD	Total/NA	Water	8260B	
LCS 680-223630/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-223630/5	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 680-223630/7	Method Blank	Total/NA	Water	8260B	

#### Analysis Batch: 223702

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-74799-1 MSD	CPA-C-DHU-1111	Total/NA	Water	8280B	
LCS 680-223702/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-223702/5	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 680-223702/7	Method Blank	Total/NA	Water	8260B	

#### Analysis Batch: 223744

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-74662-1 - DL	CPA-B-MHU-1111	Total/NA	Water	8280B	
680-74862-3	CPA-B-SHU-1111	Total/NA	Water	8260B	
680-74862-4 - DL	CPA-B-SHU-1111-AD	Total/NA	Water	8260B	
LCS 680-223744/6	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-223744/7	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 680-223744/2	Method Blank	Total/NA	Water	8260B	

### GC VOA

#### Analysis Batch: 222417

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-74713-1	CPA-A-SHU-1111	Total/NA	Water	RSK-175	
680-74713-3	CPA-A-DMU-1111	Total/NA	Water	RSK-175	
680-74713-5	CPA-A-MHU-1111	Total/NA	Water	RSK-175	
680-74746-1	CPA-D-SHU-1111	Total/NA	Water	RSK-175	
680-74746-3	CPA-D-MHU-1111	Total/NA	Water	RSK-175	
680-74746-5	CPA-D-DHU-1111	Total/NA	Water	RSK-175	
LCS 680-222417/2	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 680-222417/5	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 680-222417/4	Method Blank	Total/NA	Water	RSK-175	

#### Analysis Batch: 222418

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-74713-1	CPA-A-SHU-1111	Total/NA	Water	RSK-175	
680-74713-5	CPA-A-MHU-1111	Total/NA	Water	RSK-175	
680-74746-3	CPA-D-MHU-1111	Total/NA	Water	RSK-175	
680-74746-5	CPA-D-DHU-1111	Total/NA	Water	RSK-175	
LCS 680-222418/2	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 680-222418/3	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 680-222418/4	Method Blank	Total/NA	Water	RSK-175	

#### Analysis Batch: 222741

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-74799-1	CPA-C-DHU-1111	Total/NA	Water	RSK-175	
680-74799-3	CPA-C-MHU-1111	Total/NA	Water	RSK-175	
680-74799-6	CPA-C-SHU-1111	Total/NA	Water	RSK-175	
680-74799-8	CPA-B-DHU-1111	Total/NA	Water	RSK-175	

## QC Association Summary

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

### GC VOA (Continued)

#### Analysis Batch: 222741 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 680-222741/2	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 680-222741/3	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 680-222741/4	Method Blank	Total/NA	Water	RSK-175	

#### Analysis Batch: 222742

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-74799-1	CPA-C-DHU-1111	Total/NA	Water	RSK-175	
680-74799-3	CPA-C-MHU-1111	Total/NA	Water	RSK-175	
680-74799-6	CPA-C-SHU-1111	Total/NA	Water	RSK-175	
LCS 680-222742/2	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 680-222742/3	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 680-222742/4	Method Blank	Total/NA	Water	RSK-175	

#### Analysis Batch: 223684

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-74862-1	CPA-B-MHU-1111	Total/NA	Water	RSK-175	
LCS 680-223684/3	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 680-223684/4	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 680-223684/2	Method Blank	Total/NA	Water	RSK-175	

#### Analysis Batch: 223685

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-74862-1	CPA-B-MHU-1111	Total/NA	Water	RSK-175	
680-74862-3	CPA-B-SHU-1111	Total/NA	Water	RSK-175	
LCS 680-223685/3	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 680-223685/4	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 680-223685/1	Method Blank	Total/NA	Water	RSK-175	

### Metals

#### Prep Batch: 222293

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-74713-1	CPA-A-SHU-1111	Total Recoverable	Water	3005A	
680-74713-2	CPA-A-SHU-F(0.2)-1111	Dissolved	Water	3005A	
680-74713-3	CPA-A-DMU-1111	Total Recoverable	Water	3005A	
680-74713-4	CPA-A-DHU-F(0.2)-1111	Dissolved	Water	3005A	
680-74713-5	CPA-A-MHU-1111	Total Recoverable	Water	3005A	
680-74713-6	CPA-A-MHU-F(0.2)-1111	Dissolved	Water	3005A	
680-74746-1	CPA-D-SHU-1111	Total Recoverable	Water	3005A	
680-74746-2	CPA-D-SHU-F(0.2)-1111	Dissolved	Water	3005A	
680-74746-3	CPA-D-MHU-1111	Total Recoverable	Water	3005A	
680-74748-4	CPA-D-MHU-F(0.2)-1111	Dissolved	Water	3005A	
680-74746-5	CPA-D-DHU-1111	Total Recoverable	Water	3005A	
680-74746-8	CPA-D-DHU-F(0.2)-1111	Dissolved	Water	3005A	
LCS 680-222293/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
MB 680-222293/1-A	Method Blank	Total Recoverable	Water	3005A	

#### Analysis Batch: 222746

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-74713-1	CPA-A-SHU-1111	Total Recoverable	Water	6010B	222293
680-74713-2	CPA-A-SHU-F(0.2)-1111	Dissolved	Water	6010B	222293
680-74713-3	CPA-A-DMU-1111	Total Recoverable	Water	6010B	222293

## QC Association Summary

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

### Metals (Continued)

#### Analysis Batch: 222746 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-74713-4	CPA-A-DHU-F(0.2)-1111	Dissolved	Water	6010B	222293
680-74713-5	CPA-A-MHU-1111	Total Recoverable	Water	6010B	222293
680-74713-6	CPA-A-MHU-F(0.2)-1111	Dissolved	Water	6010B	222293
680-74746-1	CPA-D-SHU-1111	Total Recoverable	Water	6010B	222293
680-74746-2	CPA-D-SHU-F(0.2)-1111	Dissolved	Water	6010B	222293
680-74746-3	CPA-D-MHU-1111	Total Recoverable	Water	6010B	222293
680-74746-4	CPA-D-MHU-F(0.2)-1111	Dissolved	Water	6010B	222293
680-74746-5	CPA-D-DHU-1111	Total Recoverable	Water	6010B	222293
680-74746-6	CPA-D-DHU-F(0.2)-1111	Dissolved	Water	6010B	222293
LCS 680-222293/2-A	Lab Control Sample	Total Recoverable	Water	8010B	222293
MB 680-222293/1-A	Method Blank	Total Recoverable	Water	6010B	222293

#### Prep Batch: 222772

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-74799-1	CPA-C-DHU-1111	Total Recoverable	Water	3005A	
680-74799-2	CPA-C-DHU-F(0.2)-1111	Dissolved	Water	3005A	
680-74799-3	CPA-C-MHU-1111	Total Recoverable	Water	3005A	
680-74799-4	CPA-C-MHU-F(0.2)-1111	Dissolved	Water	3005A	
680-74799-6	CPA-C-SHU-1111	Total Recoverable	Water	3005A	
680-74799-7	CPA-C-SHU-F(0.2)-1111	Dissolved	Water	3005A	
680-74799-8	CPA-B-DHU-1111	Total Recoverable	Water	3005A	
680-74799-9	CPA-B-DHU-F(0.2)-1111	Dissolved	Water	3005A	
LCS 680-222772/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
MB 680-222772/1-A	Method Blank	Total Recoverable	Water	3005A	

#### Prep Batch: 222847

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-74862-3	CPA-B-SHU-1111	Total Recoverable	Water	3005A	
680-74862-5	CPA-B-SHU-F(0.2)-1111	Dissolved	Water	3005A	
LCS 680-222847/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
MB 680-222847/1-A	Method Blank	Total Recoverable	Water	3005A	

#### Prep Batch: 222861

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-74862-1	CPA-B-MHU-1111	Total Recoverable	Water	3005A	
680-74862-2	CPA-B-MHU-F(0.2)-1111	Dissolved	Water	3005A	
LCS 680-222861/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
MB 680-222861/1-A	Method Blank	Total Recoverable	Water	3005A	

#### Analysis Batch: 222959

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-74799-1	CPA-C-DHU-1111	Total Recoverable	Water	6010B	222772
680-74799-2	CPA-C-DHU-F(0.2)-1111	Dissolved	Water	6010B	222772
680-74799-3	CPA-C-MHU-1111	Total Recoverable	Water	6010B	222772
680-74799-4	CPA-C-MHU-F(0.2)-1111	Dissolved	Water	6010B	222772
680-74799-6	CPA-C-SHU-1111	Total Recoverable	Water	6010B	222772
680-74799-7	CPA-C-SHU-F(0.2)-1111	Dissolved	Water	6010B	222772
680-74799-8	CPA-B-DHU-1111	Total Recoverable	Water	6010B	222772
680-74799-9	CPA-B-DHU-F(0.2)-1111	Dissolved	Water	6010B	222772
680-74862-3	CPA-B-SHU-1111	Total Recoverable	Water	6010B	222847
680-74862-5	CPA-B-SHU-F(0.2)-1111	Dissolved	Water	6010B	222847
LCS 680-222772/2-A	Lab Control Sample	Total Recoverable	Water	6010B	222772

## QC Association Summary

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

### Metals (Continued)

#### Analysis Batch: 222959 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 680-222847/2-A	Lab Control Sample	Total Recoverable	Water	6010B	222847
MB 680-222772/1-A	Method Blank	Total Recoverable	Water	6010B	222772
MB 680-222847/1-A	Method Blank	Total Recoverable	Water	6010B	222847

#### Analysis Batch: 223145

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-74862-1	CPA-B-MHU-1111	Total Recoverable	Water	6010B	222881
680-74862-2	CPA-B-MHU-F(0.2)-1111	Dissolved	Water	6010B	222881
LCS 680-222881/2-A	Lab Control Sample	Total Recoverable	Water	6010B	222881
MB 680-222881/1-A	Method Blank	Total Recoverable	Water	6010B	222881

### General Chemistry

#### Analysis Batch: 222123

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-74713-1	CPA-A-SHU-1111	Total/NA	Water	353.2	
680-74713-1 MS	CPA-A-SHU-1111	Total/NA	Water	353.2	
680-74713-1 MSD	CPA-A-SHU-1111	Total/NA	Water	353.2	
680-74713-3	CPA-A-DMU-1111	Total/NA	Water	353.2	
680-74713-5	CPA-A-MHU-1111	Total/NA	Water	353.2	
LCS 880-222123/15	Lab Control Sample	Total/NA	Water	353.2	
MB 680-222123/14	Method Blank	Total/NA	Water	353.2	

#### Analysis Batch: 222276

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-74746-1	CPA-D-SHU-1111	Total/NA	Water	353.2	
680-74746-3	CPA-D-MHU-1111	Total/NA	Water	353.2	
680-74746-5	CPA-D-DHU-1111	Total/NA	Water	353.2	
680-74746-5 DU	CPA-D-DHU-1111	Total/NA	Water	353.2	
LCS 680-222276/15	Lab Control Sample	Total/NA	Water	353.2	
MB 680-222276/14	Method Blank	Total/NA	Water	353.2	

#### Analysis Batch: 222299

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-74713-1	CPA-A-SHU-1111	Total/NA	Water	310.1	
680-74713-3	CPA-A-DMU-1111	Total/NA	Water	310.1	
680-74713-5	CPA-A-MHU-1111	Total/NA	Water	310.1	
680-74713-5 DU	CPA-A-MHU-1111	Total/NA	Water	310.1	
680-74746-1	CPA-D-SHU-1111	Total/NA	Water	310.1	
680-74746-3	CPA-D-MHU-1111	Total/NA	Water	310.1	
680-74746-5	CPA-D-DHU-1111	Total/NA	Water	310.1	
LCS 680-222299/2	Lab Control Sample	Total/NA	Water	310.1	
LCSD 880-222299/16	Lab Control Sample Dup	Total/NA	Water	310.1	
MB 680-222299/1	Method Blank	Total/NA	Water	310.1	

#### Analysis Batch: 222364

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-74713-1	CPA-A-SHU-1111	Total/NA	Water	325.2	
680-74713-3	CPA-A-DMU-1111	Total/NA	Water	325.2	
680-74713-3 DU	CPA-A-DMU-1111	Total/NA	Water	325.2	
680-74713-5	CPA-A-MHU-1111	Total/NA	Water	325.2	
680-74746-1	CPA-D-SHU-1111	Total/NA	Water	325.2	

## QC Association Summary

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

### General Chemistry (Continued)

#### Analysis Batch: 222364 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-74746-3	CPA-D-MHU-1111	Total/NA	Water	325.2	
680-74746-5	CPA-D-DHU-1111	Total/NA	Water	325.2	
LCS 680-222364/2	Lab Control Sample	Total/NA	Water	325.2	
MB 680-222364/18	Method Blank	Total/NA	Water	325.2	

#### Analysis Batch: 222419

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-74799-1	CPA-C-DHU-1111	Total/NA	Water	310.1	
680-74799-3	CPA-C-MHU-1111	Total/NA	Water	310.1	
680-74799-6	CPA-C-SHU-1111	Total/NA	Water	310.1	
680-74799-8	CPA-B-DHU-1111	Total/NA	Water	310.1	
680-74799-8 DU	CPA-B-DHU-1111	Total/NA	Water	310.1	
LCS 680-222419/7	Lab Control Sample	Total/NA	Water	310.1	
LCSD 680-222419/30	Lab Control Sample Dup	Total/NA	Water	310.1	
MB 680-222419/5	Method Blank	Total/NA	Water	310.1	

#### Analysis Batch: 222595

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-74862-1	CPA-B-MHU-1111	Total/NA	Water	353.2	
680-74862-3	CPA-B-SHU-1111	Total/NA	Water	353.2	
LCS 680-222595/15	Lab Control Sample	Total/NA	Water	353.2	
MB 680-222595/14	Method Blank	Total/NA	Water	353.2	

#### Analysis Batch: 222597

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-74799-1	CPA-C-DHU-1111	Total/NA	Water	353.2	
680-74799-3	CPA-C-MHU-1111	Total/NA	Water	353.2	
680-74799-6	CPA-C-SHU-1111	Total/NA	Water	353.2	
680-74799-8	CPA-B-DHU-1111	Total/NA	Water	353.2	
LCS 680-222597/15	Lab Control Sample	Total/NA	Water	353.2	
MB 680-222597/14	Method Blank	Total/NA	Water	353.2	

#### Analysis Batch: 222599

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-74713-2	CPA-A-SHU-F(0.2)-1111	Dissolved	Water	415.1	
680-74713-4	CPA-A-DHU-F(0.2)-1111	Dissolved	Water	415.1	
680-74713-6	CPA-A-MHU-F(0.2)-1111	Dissolved	Water	415.1	
680-74713-6 DU	CPA-A-MHU-F(0.2)-1111	Dissolved	Water	415.1	

#### Analysis Batch: 222730

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-74862-1	CPA-B-MHU-1111	Total/NA	Water	310.1	
680-74862-3	CPA-B-SHU-1111	Total/NA	Water	310.1	
LCS 680-222730/6	Lab Control Sample	Total/NA	Water	310.1	
LCSD 680-222730/32	Lab Control Sample Dup	Total/NA	Water	310.1	
MB 680-222730/5	Method Blank	Total/NA	Water	310.1	

#### Analysis Batch: 222766

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-74746-2	CPA-D-SHU-F(0.2)-1111	Dissolved	Water	415.1	
880-74746-4	CPA-D-MHU-F(0.2)-1111	Dissolved	Water	415.1	
880-74746-8	CPA-D-DHU-F(0.2)-1111	Dissolved	Water	415.1	

## QC Association Summary

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

### General Chemistry (Continued)

#### Analysis Batch: 223009

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-74713-1	CPA-A-SHU-1111	Total/NA	Water	375.4	
680-74713-3	CPA-A-DMU-1111	Total/NA	Water	375.4	
680-74713-5	CPA-A-MHU-1111	Total/NA	Water	375.4	
680-74746-1	CPA-D-SHU-1111	Total/NA	Water	375.4	
680-74746-3	CPA-D-MHU-1111	Total/NA	Water	375.4	
680-74746-5	CPA-D-DHU-1111	Total/NA	Water	375.4	
680-74799-1	CPA-C-DHU-1111	Total/NA	Water	375.4	
680-74799-1 DU	CPA-C-DHU-1111	Total/NA	Water	375.4	
680-74799-3	CPA-C-MHU-1111	Total/NA	Water	375.4	
680-74799-6	CPA-C-SHU-1111	Total/NA	Water	375.4	
680-74799-8	CPA-B-DHU-1111	Total/NA	Water	375.4	
680-74862-1	CPA-B-MHU-1111	Total/NA	Water	375.4	
680-74862-3	CPA-B-SHU-1111	Total/NA	Water	375.4	
LCS 680-223009/2	Lab Control Sample	Total/NA	Water	375.4	
MB 680-223009/1	Method Blank	Total/NA	Water	375.4	



#### Analysis Batch: 223078

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-74713-1	CPA-A-SHU-1111	Total/NA	Water	415.1	
680-74713-1 MS	CPA-A-SHU-1111	Total/NA	Water	415.1	
680-74713-1 MSD	CPA-A-SHU-1111	Total/NA	Water	415.1	
680-74713-3	CPA-A-DMU-1111	Total/NA	Water	415.1	
680-74713-5	CPA-A-MHU-1111	Total/NA	Water	415.1	
680-74746-1	CPA-D-SHU-1111	Total/NA	Water	415.1	
680-74746-3	CPA-D-MHU-1111	Total/NA	Water	415.1	
680-74746-5	CPA-D-DHU-1111	Total/NA	Water	415.1	
680-74799-1	CPA-C-DHU-1111	Total/NA	Water	415.1	
680-74799-3	CPA-C-MHU-1111	Total/NA	Water	415.1	
680-74799-6	CPA-C-SHU-1111	Total/NA	Water	415.1	
680-74862-1	CPA-B-MHU-1111	Total/NA	Water	415.1	
LCS 680-223078/7	Lab Control Sample	Total/NA	Water	415.1	
MB 680-223078/6	Method Blank	Total/NA	Water	415.1	

#### Analysis Batch: 224100

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-74799-2	CPA-C-DHU-F(0.2)-1111	Dissolved	Water	415.1	
680-74799-2 DU	CPA-C-DHU-F(0.2)-1111	Dissolved	Water	415.1	
680-74799-4	CPA-C-MHU-F(0.2)-1111	Dissolved	Water	415.1	
680-74799-9	CPA-B-DHU-F(0.2)-1111	Dissolved	Water	415.1	
680-74862-2	CPA-B-MHU-F(0.2)-1111	Dissolved	Water	415.1	
680-74862-5	CPA-B-SHU-F(0.2)-1111	Dissolved	Water	415.1	
LCS 880-224100/2	Lab Control Sample	Dissolved	Water	415.1	
MB 680-224100/1	Method Blank	Dissolved	Water	415.1	

#### Analysis Batch: 224230

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-74799-1	CPA-C-DHU-1111	Total/NA	Water	325.2	
680-74799-1 MS	CPA-C-DHU-1111	Total/NA	Water	325.2	
680-74799-1 MSD	CPA-C-DHU-1111	Total/NA	Water	325.2	
680-74799-3	CPA-C-MHU-1111	Total/NA	Water	325.2	
680-74799-6	CPA-C-SHU-1111	Total/NA	Water	325.2	
680-74799-8	CPA-B-DHU-1111	Total/NA	Water	325.2	

JAN 13 2012

## QC Association Summary

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

### General Chemistry (Continued)

#### Analysis Batch: 224230 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-74862-1	CPA-B-MHU-1111	Total/NA	Water	325.2	
680-74862-3	CPA-B-SHU-1111	Total/NA	Water	325.2	

#### Analysis Batch: 224379

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-74799-7	CPA-C-SHU-F(0.2)-1111	Dissolved	Water	415.1	

#### Analysis Batch: 225734

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-74862-3	CPA-B-SHU-1111	Total/NA	Water	415.1	
LCS 680-225734/4	Lab Control Sample	Total/NA	Water	415.1	
MB 680-225734/2	Method Blank	Total/NA	Water	415.1	

#### Analysis Batch: 226116

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-74799-8	CPA-B-DHU-1111	Total/NA	Water	415.1	
LCS 680-226116/4	Lab Control Sample	Total/NA	Water	415.1	
LCSD 680-226116/5	Lab Control Sample Dup	Total/NA	Water	415.1	
MB 680-226116/2	Method Blank	Total/NA	Water	415.1	



JAN 13 2012

## Lab Chronicle

Client: Solutia Inc.  
Project/Site: WGG GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

**Client Sample ID: CPA-A-SHU-1111**

**Lab Sample ID: 680-74713-1**

Date Collected: 11/28/11 10:50

Matrix: Water

Date Received: 11/29/11 12:12

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		100	222917	12/06/11 20:14	AJMC	TAL SAV
Total/NA	Analysis	RSK-175		1	222417	12/01/11 14:08	SMC	TAL SAV
Total/NA	Analysis	RSK-175		1	222418	12/01/11 14:08	SMC	TAL SAV
Total Recoverable	Prep	3005A			222293	12/01/11 08:30	RAM	TAL SAV
Total Recoverable	Analysis	6010B		1	222746	12/05/11 19:50	BR	TAL SAV
Total/NA	Analysis	353.2		1	222123	11/29/11 16:11	JNC	TAL SAV
Total/NA	Analysis	310.1		1	222299	11/30/11 17:36	CDJ	TAL SAV
Total/NA	Analysis	325.2		1	222364	12/01/11 12:40	JR	TAL SAV
Total/NA	Analysis	375.4		1	223009	12/08/11 11:23	JR	TAL SAV
Total/NA	Analysis	415.1		1	223078	12/07/11 13:02	JR	TAL SAV

**Client Sample ID: CPA-A-SHU-F(0.2)-1111**

**Lab Sample ID: 680-74713-2**

Date Collected: 11/28/11 10:50

Matrix: Water

Date Received: 11/29/11 12:12

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			222293	12/01/11 08:30	RAM	TAL SAV
Dissolved	Analysis	6010B		1	222746	12/05/11 19:55	BR	TAL SAV
Dissolved	Analysis	415.1		1	222599	12/02/11 10:55	JR	TAL SAV

**Client Sample ID: CPA-A-DMU-1111**

**Lab Sample ID: 680-74713-3**

Date Collected: 11/28/11 14:05

Matrix: Water

Date Received: 11/29/11 12:12

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		2	222917	12/06/11 20:37	AJMC	TAL SAV
Total/NA	Analysis	RSK-175		1	222417	12/01/11 14:21	SMC	TAL SAV
Total Recoverable	Prep	3005A			222293	12/01/11 08:30	RAM	TAL SAV
Total Recoverable	Analysis	6010B		1	222746	12/05/11 20:00	BR	TAL SAV
Total/NA	Analysis	353.2		1	222123	11/29/11 16:14	JNC	TAL SAV
Total/NA	Analysis	310.1		1	222299	11/30/11 17:47	CDJ	TAL SAV
Total/NA	Analysis	325.2		1	222364	12/01/11 12:40	JR	TAL SAV
Total/NA	Analysis	375.4		5	223009	12/08/11 12:21	JR	TAL SAV
Total/NA	Analysis	415.1		1	223078	12/07/11 13:43	JR	TAL SAV

**Client Sample ID: CPA-A-DHU-F(0.2)-1111**

**Lab Sample ID: 680-74713-4**

Date Collected: 11/28/11 14:05

Matrix: Water

Date Received: 11/29/11 12:12

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			222293	12/01/11 08:30	RAM	TAL SAV
Dissolved	Analysis	6010B		1	222746	12/05/11 20:16	BR	TAL SAV

## Lab Chronicle

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

**Client Sample ID: CPA-A-DHU-F(0.2)-1111**

**Lab Sample ID: 680-74713-4**

Date Collected: 11/28/11 14:05

Matrix: Water

Date Received: 11/29/11 12:12

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	415.1		1	222599	12/02/11 10:55	JR	TAL SAV

**Client Sample ID: CPA-A-MHU-1111**

**Lab Sample ID: 680-74713-5**

Date Collected: 11/28/11 15:15

Matrix: Water

Date Received: 11/29/11 12:12

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		5	223045	12/07/11 22:55	AJMC	TAL SAV
Total/NA	Analysis	RSK-175		1	222417	12/01/11 14:34	SMC	TAL SAV
Total/NA	Analysis	RSK-175		1	222418	12/01/11 14:34	SMC	TAL SAV
Total Recoverable	Prep	3005A			222293	12/01/11 08:30	RAM	TAL SAV
Total Recoverable	Analysis	6010B		1	222746	12/06/11 09:10	BR	TAL SAV
Total/NA	Analysis	353.2		1	222123	11/29/11 16:16	JNC	TAL SAV
Total/NA	Analysis	310.1		1	222299	11/30/11 17:59	CDJ	TAL SAV
Total/NA	Analysis	325.2		1	222364	12/01/11 12:40	JR	TAL SAV
Total/NA	Analysis	375.4		1	223009	12/08/11 11:23	JR	TAL SAV
Total/NA	Analysis	415.1		1	223078	12/07/11 13:58	JR	TAL SAV

12

**Client Sample ID: CPA-A-MHU-F(0.2)-1111**

**Lab Sample ID: 680-74713-6**

Date Collected: 11/28/11 15:15

Matrix: Water

Date Received: 11/29/11 12:12

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			222293	12/01/11 08:30	RAM	TAL SAV
Dissolved	Analysis	6010B		1	222746	12/05/11 20:26	BR	TAL SAV
Dissolved	Analysis	415.1		1	222599	12/02/11 10:55	JR	TAL SAV

**Client Sample ID: 4Q11SUPP Trip Blank #1**

**Lab Sample ID: 680-74713-7**

Date Collected: 11/28/11 00:00

Matrix: Water

Date Received: 11/29/11 12:12

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	222917	12/06/11 14:28	AJMC	TAL SAV

**Client Sample ID: CPA-D-SHU-1111**

**Lab Sample ID: 680-74746-1**

Date Collected: 11/29/11 10:20

Matrix: Water

Date Received: 11/30/11 09:52

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		2000	223160	12/09/11 20:17	JG	TAL SAV
Total/NA	Analysis	RSK-175		1	222417	12/01/11 15:00	SMC	TAL SAV
Total Recoverable	Prep	3005A			222293	12/01/11 08:30	RAM	TAL SAV
Total Recoverable	Analysis	6010B		1	222746	12/05/11 20:36	BR	TAL SAV

## Lab Chronicle

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

**Client Sample ID: CPA-D-SHU-1111**

**Lab Sample ID: 680-74746-1**

Date Collected: 11/29/11 10:20

Matrix: Water

Date Received: 11/30/11 09:52

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	353.2		50	222276	11/30/11 17:05	JNC	TAL SAV
Total/NA	Analysis	310.1		1	222299	11/30/11 18:16	CDJ	TAL SAV
Total/NA	Analysis	325.2		5	222364	12/01/11 13:10	JR	TAL SAV
Total/NA	Analysis	375.4		100	223009	12/08/11 13:01	JR	TAL SAV
Total/NA	Analysis	415.1		10	223078	12/08/11 14:36	JR	TAL SAV

**Client Sample ID: CPA-D-SHU-F(0.2)-1111**

**Lab Sample ID: 680-74746-2**

Date Collected: 11/29/11 10:20

Matrix: Water

Date Received: 11/30/11 09:52

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			222293	12/01/11 08:30	RAM	TAL SAV
Dissolved	Analysis	6010B		1	222746	12/05/11 20:41	BR	TAL SAV
Dissolved	Analysis	415.1		5	222766	12/05/11 15:35	JR	TAL SAV

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**Client Sample ID: CPA-D-MHU-1111**

**Lab Sample ID: 680-74746-3**

Date Collected: 11/29/11 11:40

Matrix: Water

Date Received: 11/30/11 09:52

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1000	223268	12/10/11 15:35	JG	TAL SAV
Total/NA	Analysis	RSK-175		1	222417	12/01/11 15:12	SMC	TAL SAV
Total/NA	Analysis	RSK-175		1	222418	12/01/11 15:12	SMC	TAL SAV
Total Recoverable	Prep	3005A			222293	12/01/11 08:30	RAM	TAL SAV
Total Recoverable	Analysis	6010B		1	222746	12/05/11 20:47	BR	TAL SAV
Total/NA	Analysis	353.2		1	222276	11/30/11 16:39	JNC	TAL SAV
Total/NA	Analysis	310.1		1	222299	11/30/11 18:27	CDJ	TAL SAV
Total/NA	Analysis	325.2		5	222364	12/01/11 13:10	JR	TAL SAV
Total/NA	Analysis	375.4		10	223009	12/08/11 12:45	JR	TAL SAV
Total/NA	Analysis	415.1		10	223078	12/08/11 15:01	JR	TAL SAV

**Client Sample ID: CPA-D-MHU-F(0.2)-1111**

**Lab Sample ID: 680-74746-4**

Date Collected: 11/29/11 11:40

Matrix: Water

Date Received: 11/30/11 09:52

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			222293	12/01/11 08:30	RAM	TAL SAV
Dissolved	Analysis	6010B		1	222746	12/06/11 09:14	BR	TAL SAV
Dissolved	Analysis	415.1		5	222766	12/05/11 15:35	JR	TAL SAV

JAN 13 2012

TestAmerica Savannah

## Lab Chronicle

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

**Client Sample ID: CPA-D-DHU-1111**

**Lab Sample ID: 680-74746-5**

Date Collected: 11/29/11 14:30

Matrix: Water

Date Received: 11/30/11 09:52

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		200	223160	12/09/11 16:48	JG	TAL SAV
Total/NA	Analysis	RSK-175		1	222417	12/01/11 15:25	SMC	TAL SAV
Total/NA	Analysis	RSK-175		1	222418	12/01/11 15:25	SMC	TAL SAV
Total Recoverable	Prep	3005A			222293	12/01/11 08:30	RAM	TAL SAV
Total Recoverable	Analysis	6010B		1	222746	12/05/11 20:57	BR	TAL SAV
Total/NA	Analysis	353.2		1	222276	11/30/11 16:40	JNC	TAL SAV
Total/NA	Analysis	310.1		1	222299	11/30/11 18:38	CDJ	TAL SAV
Total/NA	Analysis	325.2		1	222364	12/01/11 12:45	JR	TAL SAV
Total/NA	Analysis	375.4		1	223009	12/08/11 11:25	JR	TAL SAV
Total/NA	Analysis	415.1		1	223078	12/07/11 14:41	JR	TAL SAV

**Client Sample ID: CPA-D-DHU-F(0.2)-1111**

**Lab Sample ID: 680-74746-6**

Date Collected: 11/29/11 14:30

Matrix: Water

Date Received: 11/30/11 09:52

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			222293	12/01/11 08:30	RAM	TAL SAV
Dissolved	Analysis	6010B		1	222746	12/05/11 21:02	BR	TAL SAV
Dissolved	Analysis	415.1		1	222766	12/05/11 15:35	JR	TAL SAV

**Client Sample ID: CPA-D-SHU-1111-AD**

**Lab Sample ID: 680-74746-7**

Date Collected: 11/29/11 10:20

Matrix: Water

Date Received: 11/30/11 09:52

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1000	223160	12/09/11 16:21	JG	TAL SAV

**Client Sample ID: CPA-C-DHU-1111**

**Lab Sample ID: 680-74799-1**

Date Collected: 11/30/11 09:55

Matrix: Water

Date Received: 12/01/11 09:52

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		500	223412	12/13/11 18:49	AJMC	TAL SAV
Total/NA	Analysis	RSK-175		1	222741	12/05/11 18:46	SMC	TAL SAV
Total/NA	Analysis	RSK-175		1	222742	12/05/11 18:46	SMC	TAL SAV
Total Recoverable	Prep	3005A			222772	12/06/11 13:12	RAM	TAL SAV
Total Recoverable	Analysis	6010B		1	222959	12/07/11 21:20	BCB	TAL SAV
Total/NA	Analysis	310.1		1	222419	12/01/11 19:23	CDJ	TAL SAV
Total/NA	Analysis	353.2		1	222597	12/01/11 16:01	JNC	TAL SAV
Total/NA	Analysis	375.4		5	223009	12/08/11 12:43	JR	TAL SAV
Total/NA	Analysis	415.1		10	223078	12/08/11 15:18	JR	TAL SAV
Total/NA	Analysis	325.2		2	224230	12/19/11 17:39	JNC	TAL SAV

## Lab Chronicle

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

**Client Sample ID: CPA-C-DHU-F(0.2)1111**

**Lab Sample ID: 680-74799-2**

Date Collected: 11/30/11 09:55

Matrix: Water

Date Received: 12/01/11 09:52

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			222772	12/06/11 13:12	RAM	TAL SAV
Dissolved	Analysis	6010B		1	222959	12/07/11 21:25	BCB	TAL SAV
Dissolved	Analysis	415.1		1	224100	12/15/11 18:27	JR	TAL SAV

**Client Sample ID: CPA-C-MHU-1111**

**Lab Sample ID: 680-74799-3**

Date Collected: 11/30/11 11:00

Matrix: Water

Date Received: 12/01/11 09:52

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		2500	223412	12/13/11 20:16	AJMC	TAL SAV
Total/NA	Analysis	RSK-175		1	222741	12/05/11 18:59	SMC	TAL SAV
Total/NA	Analysis	RSK-175		1	222742	12/05/11 18:59	SMC	TAL SAV
Total Recoverable	Prep	3005A			222772	12/06/11 13:12	RAM	TAL SAV
Total Recoverable	Analysis	6010B		1	222959	12/07/11 21:30	BCB	TAL SAV
Total/NA	Analysis	310.1		1	222419	12/01/11 19:33	CDJ	TAL SAV
Total/NA	Analysis	353.2		1	222597	12/01/11 16:04	JNC	TAL SAV
Total/NA	Analysis	375.4		5	223009	12/08/11 12:31	JR	TAL SAV
Total/NA	Analysis	415.1		10	223078	12/08/11 15:35	JR	TAL SAV
Total/NA	Analysis	325.2		10	224230	12/19/11 17:39	JNC	TAL SAV

**Client Sample ID: CPA-C-MHU-F(0.2)-1111**

**Lab Sample ID: 680-74799-4**

Date Collected: 11/30/11 11:00

Matrix: Water

Date Received: 12/01/11 09:52

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			222772	12/06/11 13:12	RAM	TAL SAV
Dissolved	Analysis	6010B		1	222959	12/07/11 21:35	BCB	TAL SAV
Dissolved	Analysis	415.1		1	224100	12/15/11 18:27	JR	TAL SAV

**Client Sample ID: CPA-C-SHU-1111-EB**

**Lab Sample ID: 680-74799-5**

Date Collected: 11/30/11 12:50

Matrix: Water

Date Received: 12/01/11 09:52

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	223259	12/11/11 16:47	AJMC	TAL SAV

**Client Sample ID: CPA-C-SHU-1111**

**Lab Sample ID: 680-74799-6**

Date Collected: 11/30/11 13:40

Matrix: Water

Date Received: 12/01/11 09:52

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		200	223412	12/13/11 19:18	AJMC	TAL SAV
Total/NA	Analysis	RSK-175		1	222741	12/05/11 19:12	SMC	TAL SAV

## Lab Chronicle

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

**Client Sample ID: CPA-C-SHU-1111**

**Lab Sample ID: 680-74799-6**

Date Collected: 11/30/11 13:40

Matrix: Water

Date Received: 12/01/11 09:52

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	222742	12/05/11 19:12	SMC	TAL SAV
Total Recoverable	Prep	3005A			222772	12/06/11 13:12	RAM	TAL SAV
Total Recoverable	Analysis	6010B		1	222959	12/07/11 21:40	BCB	TAL SAV
Total/NA	Analysis	310.1		1	222419	12/01/11 20:05	CDJ	TAL SAV
Total/NA	Analysis	353.2		5	222597	12/01/11 16:14	JNC	TAL SAV
Total/NA	Analysis	375.4		10	223009	12/08/11 12:31	JR	TAL SAV
Total/NA	Analysis	415.1		10	223078	12/08/11 15:53	JR	TAL SAV
Total/NA	Analysis	325.2		10	224230	12/19/11 17:39	JNC	TAL SAV

**Client Sample ID: CPA-C-SHU-F(0.2)-1111**

**Lab Sample ID: 680-74799-7**

Date Collected: 11/30/11 13:40

Matrix: Water

Date Received: 12/01/11 09:52

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			222772	12/06/11 13:12	RAM	TAL SAV
Dissolved	Analysis	6010B		1	222959	12/07/11 21:45	BCB	TAL SAV
Dissolved	Analysis	415.1		10	224379	12/21/11 21:30	TH	TAL SAV

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**Client Sample ID: CPA-B-DHU-1111**

**Lab Sample ID: 680-74799-8**

Date Collected: 11/30/11 14:45

Matrix: Water

Date Received: 12/01/11 09:52

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		500	223412	12/13/11 19:47	AJMC	TAL SAV
Total/NA	Analysis	RSK-175		1	222741	12/05/11 19:25	SMC	TAL SAV
Total Recoverable	Prep	3005A			222772	12/08/11 13:12	RAM	TAL SAV
Total Recoverable	Analysis	6010B		1	222959	12/07/11 21:50	BCB	TAL SAV
Total/NA	Analysis	310.1		1	222419	12/01/11 19:43	CDJ	TAL SAV
Total/NA	Analysis	353.2		1	222597	12/01/11 16:07	JNC	TAL SAV
Total/NA	Analysis	375.4		5	223009	12/08/11 12:33	JR	TAL SAV
Total/NA	Analysis	325.2		1	224230	12/19/11 18:22	JNC	TAL SAV
Total/NA	Analysis	415.1		1	226116	01/13/12 11:46	JR	TAL SAV

**Client Sample ID: CPA-B-DHU-F(0.2)-1111**

**Lab Sample ID: 680-74799-9**

Date Collected: 11/30/11 14:45

Matrix: Water

Date Received: 12/01/11 09:52

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			222772	12/06/11 13:12	RAM	TAL SAV
Dissolved	Analysis	6010B		1	222959	12/07/11 22:05	BCB	TAL SAV
Dissolved	Analysis	415.1		1	224100	12/15/11 18:27	JR	TAL SAV

## Lab Chronicle

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

**Client Sample ID: 4Q11 CPA Trip Blank #3**

**Lab Sample ID: 680-74799-10**

Date Collected: 11/30/11 00:00

Matrix: Water

Date Received: 12/01/11 09:52

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	223259	12/11/11 15:24	AJMC	TAL SAV

**Client Sample ID: CPA-B-MHU-1111**

**Lab Sample ID: 680-74862-1**

Date Collected: 12/01/11 10:05

Matrix: Water

Date Received: 12/02/11 09:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		200	223630	12/14/11 19:03	RB	TAL SAV
Total/NA	Analysis	8260B	DL	1000	223744	12/15/11 19:39	AJMC	TAL SAV
Total/NA	Analysis	RSK-175		1	223684	12/14/11 22:56	SMC	TAL SAV
Total/NA	Analysis	RSK-175		1	223685	12/14/11 22:56	SMC	TAL SAV
Total Recoverable	Prep	3005A			222861	12/07/11 10:45	RAM	TAL SAV
Total Recoverable	Analysis	6010B		1	223145	12/08/11 19:46	BCB	TAL SAV
Total/NA	Analysis	353.2		1	222595	12/02/11 16:01	JNC	TAL SAV
Total/NA	Analysis	310.1		1	222730	12/03/11 17:00	TH	TAL SAV
Total/NA	Analysis	375.4		1	223009	12/08/11 11:35	JR	TAL SAV
Total/NA	Analysis	415.1		10	223078	12/08/11 11:25	JR	TAL SAV
Total/NA	Analysis	325.2		10	224230	12/19/11 17:39	JNC	TAL SAV

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**Client Sample ID: CPA-B-MHU-F(0.2)-1111**

**Lab Sample ID: 680-74862-2**

Date Collected: 12/01/11 10:05

Matrix: Water

Date Received: 12/02/11 09:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			222861	12/07/11 10:45	RAM	TAL SAV
Dissolved	Analysis	6010B		1	223145	12/08/11 19:51	BCB	TAL SAV
Dissolved	Analysis	415.1		1	224100	12/15/11 18:27	JR	TAL SAV

**Client Sample ID: CPA-B-SHU-1111**

**Lab Sample ID: 680-74862-3**

Date Collected: 12/01/11 11:20

Matrix: Water

Date Received: 12/02/11 09:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		500	223744	12/15/11 18:41	AJMC	TAL SAV
Total/NA	Analysis	RSK-175		1	223685	12/14/11 23:09	SMC	TAL SAV
Total Recoverable	Prep	3005A			222847	12/07/11 09:59	RAM	TAL SAV
Total Recoverable	Analysis	6010B		1	222959	12/08/11 04:35	BCB	TAL SAV
Total/NA	Analysis	353.2		1	222595	12/02/11 16:02	JNC	TAL SAV
Total/NA	Analysis	310.1		1	222730	12/03/11 17:10	TH	TAL SAV
Total/NA	Analysis	375.4		5	223009	12/08/11 12:33	JR	TAL SAV
Total/NA	Analysis	325.2		10	224230	12/19/11 17:44	JNC	TAL SAV
Total/NA	Analysis	415.1		1	225734	01/09/12 12:17	JR	TAL SAV

JAN 13 2012

## Lab Chronicle

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

**Client Sample ID: CPA-B-SHU-1111-AD**

**Lab Sample ID: 680-74862-4**

Date Collected: 12/01/11 11:20

Matrix: Water

Date Received: 12/02/11 09:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		200	223630	12/14/11 18:34	RB	TAL SAV
Total/NA	Analysis	8260B	DL	1000	223744	12/15/11 19:10	AJMC	TAL SAV

**Client Sample ID: CPA-B-SHU-F(0.2)-1111**

**Lab Sample ID: 680-74862-5**

Date Collected: 12/01/11 11:20

Matrix: Water

Date Received: 12/02/11 09:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			222847	12/07/11 09:59	RAM	TAL SAV
Dissolved	Analysis	6010B		1	222959	12/08/11 04:30	BCB	TAL SAV
Dissolved	Analysis	415.1		1	224100	12/15/11 18:27	JR	TAL SAV

**Client Sample ID: 4Q11 CPA Trip Blank #4**

**Lab Sample ID: 680-74862-6**

Date Collected: 12/01/11 00:00

Matrix: Water

Date Received: 12/02/11 09:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	222917	12/06/11 14:05	AJMC	TAL SAV

**Laboratory References:**

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

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JAN 13 2012

TestAmerica Savannah

Savannah  
5102 LaRoche Avenue

Savannah, GA 31404  
phone 912.354.7858 fax 912.352.0165

13

# Chain of Custody Record

**TestAmerica**  
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

<b>Client Contact</b>		<b>Project Manager: Dave Palmer</b>		<b>Site Contact: Nathan McNurlen</b>		<b>Date: 11/28/11</b>		<b>COC No:</b>									
URS Corporation		Tel/Fax: (314) 743-4154		Lab Contact: Lidya Gulizia		Carrier: FedEx		1 of 1 COCs									
1001 Highlands Plaza Drive West, Suite 300		<b>Analysis Turnaround Time</b>						Job No.									
St. Louis, MO 63110		Calendar (C) or Work Days (W) <u>C</u>						21562722.00001									
(314) 429-0100 Phone		TAT if different from Below <u>Standard</u>						21562703.00003-11C									
(314) 429-0462 FAX		<input checked="" type="checkbox"/> 2 weeks						SDG No.									
Project Name: 4Q11 Supplemental GW Sampling		<input type="checkbox"/> 1 week															
Site: Solutia WG Krummrich Facility		<input type="checkbox"/> 2 days															
PO#		<input type="checkbox"/> 1 day															
<b>Sample Identification</b>		<b>Sample Date</b>	<b>Sample Time</b>	<b>Sample Type</b>	<b>Matrix</b>	<b># of Cont.</b>	<b>Filtered Sample:</b>	<b>VOCs by 8260</b>	<b>Total Fe/Mn by 6010B</b>	<b>Alk/CO2 by 310.1</b>	<b>Chloride by 325.2/Sulfate by 375.4</b>	<b>Methane by RSK 175</b>	<b>Nitrate by 353.2</b>	<b>TOC by 415.1</b>	<b>Dissolved Fe/Mn by 6010B</b>	<b>DOC by 415.1</b>	<b>Sample Specific Notes:</b>
CPA-A-SHU-1111 ✓	11/28/11	1050	G	Water	12			3	1	1	1	3	2	1			
CPA-A-SMU-F(0.2)-1111 ✓		1050	G	Water	2	X								1	1		
CPA-A-DHU-1111 ✓		1405	G	Water	12			3	1	1	1	3	2	1			
CPA-A-DHU-F(0.2)-1111 ✓		1405	G	Water	2	X								1	1		
CPA-A-MHU-1111 ✓		1515	G	Water	12			3	1	1	1	3	2	1			
CPA-A-MHU-F(0.2)-1111 ✓		1515	G	Water	2	X								1	1		
4Q11 SUPP Trip Blank # 1				Water	2			2									
<b>Preservation Used:</b> 1= Ice, 2= HCl; 3= H2SO4; 4= HNO3; 5= NaOH; 6= Other							2 1 4 1 1 1 3.1 2 4 2										
<b>Possible Hazard Identification</b>							<b>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</b>										
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/>							<input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months										
<b>Special Instructions/QC Requirements &amp; Comments: Level 4 Data Package</b>																	
Temp 4.8°C																	
Relinquished by: <u>M. Clit</u>		Company: <b>URS</b>		Date/Time: <u>11/28/11 1700</u>		Received by: <u>Betha Daugherty</u>		Company: <u>TA SAV</u>		Date/Time: <u>11-29-11 1212</u>							
Relinquished by:		Company:		Date/Time:		Received by:		Company:		Date/Time:							
Relinquished by:		Company:		Date/Time:		Received by:		Company:		Date/Time:							

JAN 13 2012

Savannah  
5102 LaRoche Avenue

Savannah, GA 31404  
phone 912.354.7858 fax 912.352.0165

13

# Chain of Custody Record

**TestAmerica**  
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

<b>Client Contact</b>		<b>Project Manager: Dave Palmer</b>		<b>Site Contact: Nathan McNurlen</b>		<b>Date: 11/29/11</b>		<b>COC No:</b>									
URS Corporation		Tel/Fax: (314) 743-4154		Lab Contact: Lidya Gulizia		Carrier: <b>FEDEX</b>		1 of 1 COCs									
1001 Highlands Plaza Drive West, Suite 300		Analysis Turnaround Time						Job No.									
St. Louis, MO 63110		Calendar (C) or Work Days (W) <u>C</u>						21562722-00001									
(314) 429-0100 Phone		TAT if different from below <u>Standard</u>						24562703-00003-ML									
(314) 429-0462 FAX		<input checked="" type="checkbox"/> 2 weeks						SDG No.									
Project Name: 4Q11 CPA GW Sampling		<input type="checkbox"/> 1 week															
Site: Solutia WG Krummrich Facility		<input type="checkbox"/> 2 days															
PO#		<input type="checkbox"/> 1 day															
<b>Sample Identification</b>		<b>Sample Date</b>	<b>Sample Time</b>	<b>Sample Type</b>	<b>Matrix</b>	<b># of Cont.</b>	<b>VOCs by 8260</b>	<b>Total Fe/Mn by 6010B</b>	<b>Alk/CO2 by 310.1</b>	<b>Chloride by 325.2/Sulfate by 375.4</b>	<b>Methane by RSK 175</b>	<b>Nitrate by 353.2</b>	<b>TOC by 415.1</b>	<b>Dissolved Fe/Mn by 6010B</b>	<b>DOC by 415.1</b>	<b>Sample Specific Notes:</b>	
CPA-D-SHU-1111 ✓	11/29/11	1020	G	Water	12		3	1	1	1	3	2	1				
CPA-D-SHU-F(0.2)-1111 ✓		1020	G	Water	2	X								1	1		
CPA-D-MHU-1111 ✓		1140	G	Water	12		3	1	1	1	3	2	1				
CPA-D-MHU-F(0.2)-1111 ✓		1140	G	Water	2	X								1	1		
CPA-D-DHU-1111 ✓		1430	G	Water	12		3	1	1	1	3	2	1				
CPA-D-DHU-F(0.2)-1111 ✓		1430	G	Water	2	X								1	1		
CPA-D-SHU-1111-AD ✓	✓	1020	G	Water	3												
4Q11 CPA Trip Blank #2	11/29/11	—	—	Water	2		2										
<b>Preservation Used:</b> 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other							2	1	4	1	1	1	3	1	2	4	2
<b>Possible Hazard Identification</b>							<b>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</b>										
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/>							<input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months										
<b>Special Instructions/QC Requirements &amp; Comments: Level 4 Data Package</b>																	
680-74746																	
Temp 3.1°C																	
Relinquished by: <i>mlch</i>		Company: <b>URS</b>		Date/Time: 11/29/11 1630		Received by: <i>Beth A Daughtry</i>		Company: <b>TA sav</b>		Date/Time: 11/29/11							
Relinquished by: <i>James Rale</i>		Company: <b>URS</b>		Date/Time: 11/29/11 1700		Received by: <i>Beth A Daughtry</i>		Company: <b>TA sav</b>		Date/Time: 11-30-11 0952							
Relinquished by:		Company:		Date/Time:		Received by:		Company:		Date/Time:							

JAN 13 2012

Savannah  
5102 LaRoche Avenue

Savannah, GA 31404  
phone 912.354.7858 fax 912.352.0165

13

# Chain of Custody Record

TestAmerica  
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Dave Palmer		Site Contact: Nathan McNurlen		Date: 11/30/11		COC No:														
URS Corporation		Tel/Fax: (314) 743-4154		Lab Contact: Lidya Gulizia		Carrier: FedEx		1 of 1 COCs														
1001 Highlands Plaza Drive West, Suite 300		Analysis Turnaround Time		Filtered Sample VOCs by 8260 Total Fe/Mn by 6010B Alk/CO2 by 310.1 Chloride by 325.2/Sulfate by 375.4 Methane by RSK 175 Nitrate by 353.2 TOC by 415.1 Dissolved Fe/Mn by 6010B DOC by 415.1		Job No.		21562722.0000														
St. Louis, MO 63110		Calendar (C) or Work Days (W) C				SDG No.		21562703.00003 ml														
(314) 429-0100 Phone		TAT if different from Below Standard																				
(314) 429-0462 FAX		<input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day																				
Project Name: 4Q11 CPA GW Sampling																						
Site: Solutia WG Krummrich Facility																						
PO#																						
Sample Identification		Sample Date	Sample Time	Sample Type	Matrix	# of Cont.														Sample Specific Notes:		
CPA-C-DHU -1111 ✓		11/30/11	0955	G	Water	12																
CPA-C-DHU -F(0.2)-1111 ✓				G	Water	2	X															
CPA-C-DHU-1111-MS				G	W	3																
CPA-C-DHU-1111-MSD				G	W	3																
CPA-C-MHU-1111 ✓			1100	G	W	12		3	1	1	1	3	2	1								
CPA-C-MHU-F(0.2)-1111 ✓			1100	G	W	2	X															
CPA-C-SHU-1111-EB ✓			1250	G	W	3		3														
CPA-C-SHU-1111 ✓			1340	G	W	12		3	1	1	1	3	2	1								
CPA-C-SHU-F(0.2)-1111 ✓			1340	G	W	2	X															
CPA-B-DHU-1111 ✓			1445	G	W	12		3	1	1	1	3	2	1								
CPA-B-DHU-F(0.2)-1111 ✓			1445	G	W	2	X															
4Q11 CPA Trip Blank # 3 ✓		11/30/11			Water	2		2														
Preservation Used: 1=Ice, 2=HCl; 3=H2SO4; 4=HNO3; 5=NaOH; 6=Other							2 1 4 1 1 1 3 1 2 4 2															
Possible Hazard Identification							Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)															
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/>							<input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months															
Special Instructions/QC Requirements & Comments: Level 4 Data Package																						
680-77799 23/3.00																						
Relinquished by: [Signature]		Company: URS		Date/Time: 11/30/11 1630		Received by: [Signature]		Company: TA		Date/Time: 11/30/11 1630												
Relinquished by: [Signature]		Company: TA		Date/Time: 11/30/11 1710		Received by: [Signature]		Company: TA		Date/Time:												
Relinquished by:		Company:		Date/Time:		Received by: [Signature]		Company: TA		Date/Time: 12/1/11 0952												

JAN 13 2012

Savannah  
5102 LaRoche Avenue

Savannah, GA 31404  
phone 912.354.7858 fax 912.352.0165

13

# Chain of Custody Record

TestAmerica  
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Dave Palmer		Site Contact: Nadrian McNurlen		Date: 12/1/11		COC No:									
URS Corporation		Tel/Fax: (314) 743-4154		Lab Contact: Lidya Gulizia		Carrier: FedEx		1 of 1 COCs									
1001 Highlands Plaza Drive West, Suite 300		Analysis Turnaround Time						Job No.									
St. Louis, MO 63110		Calendar (C) or Work Days (W) C						21562722-00001									
(314) 429-0100 Phone		TAT if different from below Standard						-21562722-00002-ALC									
(314) 429-0462 FAX		<input checked="" type="checkbox"/> 2 weeks						SDG No.									
Project Name: 4Q11 CPA GW Sampling		<input type="checkbox"/> 1 week															
Site: Solutia WG Krummrich Facility		<input type="checkbox"/> 2 days															
PO#		<input type="checkbox"/> 1 day															
Sample Identification		Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	VOCs by 8260	Total Fe/Nin by 6010B	Alk/CO2 by 310.1	Chloride by 325.2/Sulfate by 375.4	Methane by BSK 175	Nitrate by 353.2	TOC by 415.1	Dissolved Fe/Nin by 6010B	DOC by 415.1	Sample Specific Notes:	
CPA-B-MHU -1111 ✓	12/1/11	1005	G	Water	12		3	1	1	1	3	2	1				
CPA-B-MHU -F(0.2)-1111 ✓	12/1/11	1005	G	Water	2	X								1	1		
CPA-B-SHU -1111 ✓	12/1/11	1120	G	W	12		3	1	1	1	3	2	1				
CPA-B-SHU -1111-AD ✓	12/1/11	1120	G	W	3		3										
CPA-B-SHU-F(0.2)-1111 ✓	12/1/11	1120	G	W	2	X								1	1		
4Q11 CPA Trip Blank # 4 ✓	12/1/11	---	---	Water	2		2										
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4= HNO3; 5= NaOH; 6= Other							2	1	4	1	1	1	3	1	2	4	2
Possible Hazard Identification							Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)										
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/>							<input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months										
Special Instructions/QC Requirements & Comments: Level 4 Data Package																	
680-74862 2.8%																	
Relinquished by: [Signature]		Company: URS		Date/Time: 12/1/11 1415		Received by: [Signature]		Company: TA		Date/Time: 12/1/11 1415		Received by: [Signature]		Company: TA		Date/Time: 12/1/11 0936	
Relinquished by: [Signature]		Company: TA		Date/Time: 12/1/11 1730		Received by: [Signature]		Company: TA		Date/Time: 12/1/11 1730		Received by: [Signature]		Company: TA		Date/Time: 12/1/11 0936	
Relinquished by: [Signature]		Company: TA		Date/Time: 12/1/11 1730		Received by: [Signature]		Company: TA		Date/Time: 12/1/11 1730		Received by: [Signature]		Company: TA		Date/Time: 12/1/11 0936	

## Login Sample Receipt Checklist

Client: Solutia Inc.

Job Number: 680-74713-1

SDG Number: KPS068

Login Number: 74713

List Source: TestAmerica Savannah

List Number: 1

Creator: Daughtry, Beth

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	4.8 C
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	Insufficient volume received for MS/MSD.
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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## Login Sample Receipt Checklist

Client: Solutia Inc.

Job Number: 680-74713-1

SDG Number: KPS068

Login Number: 74746

List Source: TestAmerica Savannah

List Number: 1

Creator: Daughtry, Beth

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	3.1 C
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the sample IDs on the containers and the COC.	False	Trip Blank listed - did not rec'v sample
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	Insufficient volume received for MS/MSD.
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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## Login Sample Receipt Checklist

Client: Solutia Inc.

Job Number: 680-74713-1

SDG Number: KPS068

Login Number: 74799


List Source: TestAmerica Savannah

List Number: 1

Creator: Conner, Keaton

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.8 and 3.0 C
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	

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JAN 13 2012 

## Login Sample Receipt Checklist

Client: Solutia Inc.

Job Number: 680-74713-1

SDG Number: KPS068

Login Number: 74862

List Source: TestAmerica Savannah

List Number: 1

Creator: Conner, Keaton

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.8 C
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the sample IDs on the containers and the COC.	False	IDS on labels read "1211" (not "1111"); samples logged per COC.
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	Insufficient volume received for MS/MSD.
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	

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## Certification Summary

Client: Solutia Inc.  
Project/Site: WGK GW CPA - 4Q11 - NOV-DEC 2011

TestAmerica Job ID: 680-74713-1  
SDG: KPS068

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Savannah	A2LA	DoD ELAP		0399-01
TestAmerica Savannah	A2LA	ISO/IEC 17025		399.01
TestAmerica Savannah	Alabama	State Program	4	41450
TestAmerica Savannah	Arkansas	Arkansas DOH	6	N/A
TestAmerica Savannah	Arkansas	State Program	6	88-0692
TestAmerica Savannah	California	NELAC	9	3217CA
TestAmerica Savannah	Colorado	State Program	8	N/A
TestAmerica Savannah	Connecticut	State Program	1	PH-0181
TestAmerica Savannah	Delaware	State Program	3	N/A
TestAmerica Savannah	Florida	NELAC	4	E87052
TestAmerica Savannah	Georgia	Georgia EPD	4	N/A
TestAmerica Savannah	Georgia	State Program	4	803
TestAmerica Savannah	Guam	State Program	9	09-005r
TestAmerica Savannah	Hawaii	State Program	9	N/A
TestAmerica Savannah	Illinois	NELAC	5	200022
TestAmerica Savannah	Indiana	State Program	5	N/A
TestAmerica Savannah	Iowa	State Program	7	353
TestAmerica Savannah	Kentucky	Kentucky UST	4	18
TestAmerica Savannah	Kentucky	State Program	4	90084
TestAmerica Savannah	Louisiana	NELAC	6	30690
TestAmerica Savannah	Louisiana	NELAC	6	LA100015
TestAmerica Savannah	Maine	State Program	1	GA00006
TestAmerica Savannah	Maryland	State Program	3	250
TestAmerica Savannah	Massachusetts	State Program	1	M-GA006
TestAmerica Savannah	Michigan	State Program	5	9925
TestAmerica Savannah	Mississippi	State Program	4	N/A
TestAmerica Savannah	Montana	State Program	8	CERT0081
TestAmerica Savannah	Nebraska	State Program	7	TestAmerica-Savannah
TestAmerica Savannah	New Jersey	NELAC	2	GA769
TestAmerica Savannah	New Mexico	State Program	6	N/A
TestAmerica Savannah	New York	NELAC	2	10842
TestAmerica Savannah	North Carolina	North Carolina DENR	4	269
TestAmerica Savannah	North Carolina	North Carolina PHL	4	13701
TestAmerica Savannah	Oklahoma	State Program	6	9984
TestAmerica Savannah	Pennsylvania	NELAC	3	68-00474
TestAmerica Savannah	Puerto Rico	State Program	2	GA00006
TestAmerica Savannah	Rhode Island	State Program	1	LA000244
TestAmerica Savannah	South Carolina	State Program	4	98001
TestAmerica Savannah	Tennessee	State Program	4	TN02961
TestAmerica Savannah	Texas	NELAC	6	T104704185-08-TX
TestAmerica Savannah	USDA	USDA		SAV 3-04
TestAmerica Savannah	Vermont	State Program	1	87052
TestAmerica Savannah	Virginia	NELAC	3	460161
TestAmerica Savannah	Virginia	State Program	3	302
TestAmerica Savannah	Washington	State Program	10	C1794
TestAmerica Savannah	West Virginia	West Virginia DEP	3	94
TestAmerica Savannah	West Virginia	West Virginia DHHR (DW)	3	9950C
TestAmerica Savannah	Wisconsin	State Program	5	999819810
TestAmerica Savannah	Wyoming	State Program	8	8TMS-Q



Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

**Appendix F**

**Microbial Insights Data Package**



2340 Stock Creek Blvd.  
Rockford TN 37853-3044  
Phone: (865) 573-8188  
Fax: (865) 573-8133  
Email: info@microbe.com

**Client:** Dave Palmer  
URS Corp  
1001 Highlands Plaza Dr. West  
Suite 300  
St. Louis, MO 63110

**Phone:** (314) 743-4154

**Fax:** (314) 429-0462

**Identifier:** 048IK

**Date Rec:** 11/15/2011

**Report Date:** 12/07/2011

**Client Project #:** 21562722

**Client Project Name:** Solutia WGK CPA 4Q11

**Purchase Order #:** 21562722

**Analysis Requested:** PLFA

**Reviewed By:**

A handwritten signature in black ink, appearing to read 'Susan A. Lewis', on a light blue background.

NOTICE: This report is intended only for the addressee shown above and may contain confidential or privileged information. If the recipient of this material is not the intended recipient or if you have received this in error, please notify Microbial Insights, Inc. immediately. The data and other information in this report represent only the sample(s) analyzed and are rendered upon condition that it is not to be reproduced without approval from Microbial Insights, Inc. Thank you for your cooperation.

**MICROBIAL INSIGHTS, INC.**

2340 Stock Creek Blvd. Rockford, TN 37853-3044

Tel. (865) 573-8188 Fax. (865) 573-8133

**PLFA**

**Client:** URS Corp  
**Project:** Solutia WGK CPA 4Q11

**MI Project Number:** 048IK  
**Date Received:** 11/15/2011

**Sample Information**

Sample Name:	CPA-A-DHU	CPA-B-DHU	CPA-C-DHU	CPA-D-DHU
Sample Date:	11/14/2011	11/14/2011	11/14/2011	11/14/2011
Sample Matrix:	Std. Bio-Trap	Std. Bio-Trap	Std. Bio-Trap	Std. Bio-Trap
Analyst:	BJ	BJ	BJ	BJ

**Biomass Concentrations**

Total Biomass (cells/bead)	CPA-A-DHU	CPA-B-DHU	CPA-C-DHU	CPA-D-DHU
	5.90E+04	9.44E+04	4.14E+04	6.64E+04

**Community Structure (% total PLFA)**

	CPA-A-DHU	CPA-B-DHU	CPA-C-DHU	CPA-D-DHU
Firmicutes (TerBrSats)	0.00	7.44	0.00	0.00
Proteobacteria (Monos)	80.49	76.52	74.75	72.29
Anaerobic metal reducers (BrMonos)	0.00	0.00	0.00	0.00
SRB/Actinomycetes (MidBrSats)	0.00	0.00	0.00	0.00
General (Nsats)	19.53	16.05	25.23	27.70
Eukaryotes (polyenoics)	0.00	0.00	0.00	0.00

**Physiological Status (Proteobacteria only)**

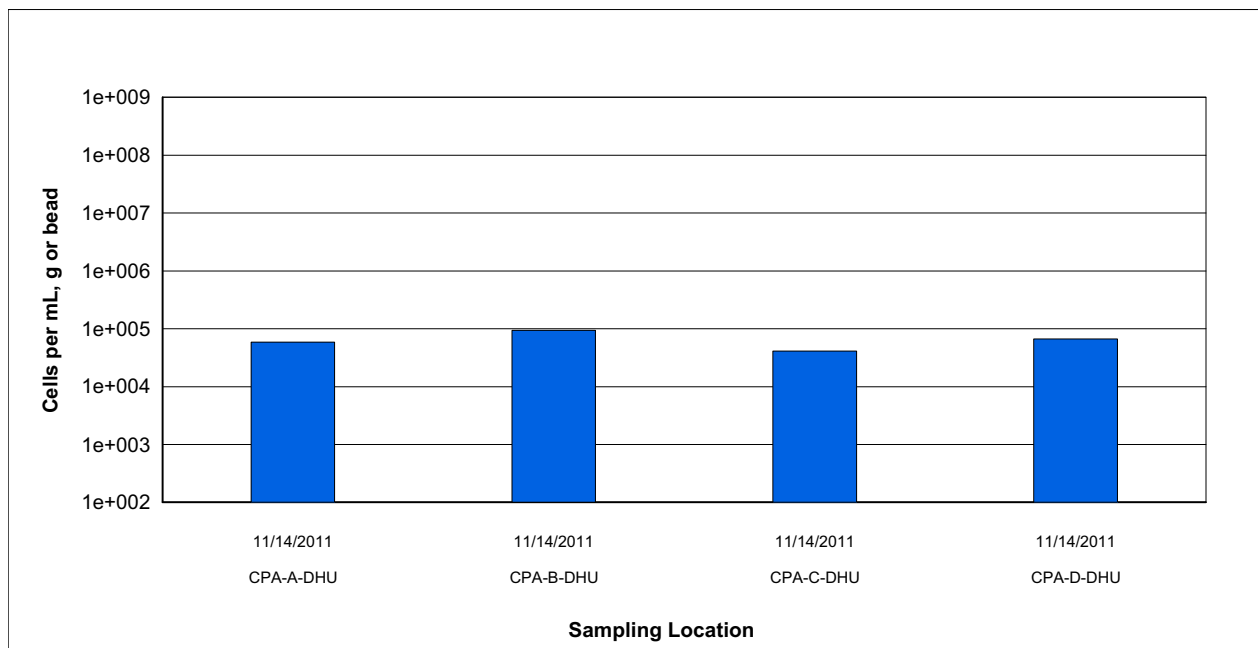
	CPA-A-DHU	CPA-B-DHU	CPA-C-DHU	CPA-D-DHU
Slowed Growth	0.00	0.10	0.55	0.47
Decreased Permeability	0.00	0.00	0.00	0.00

**Legend:**

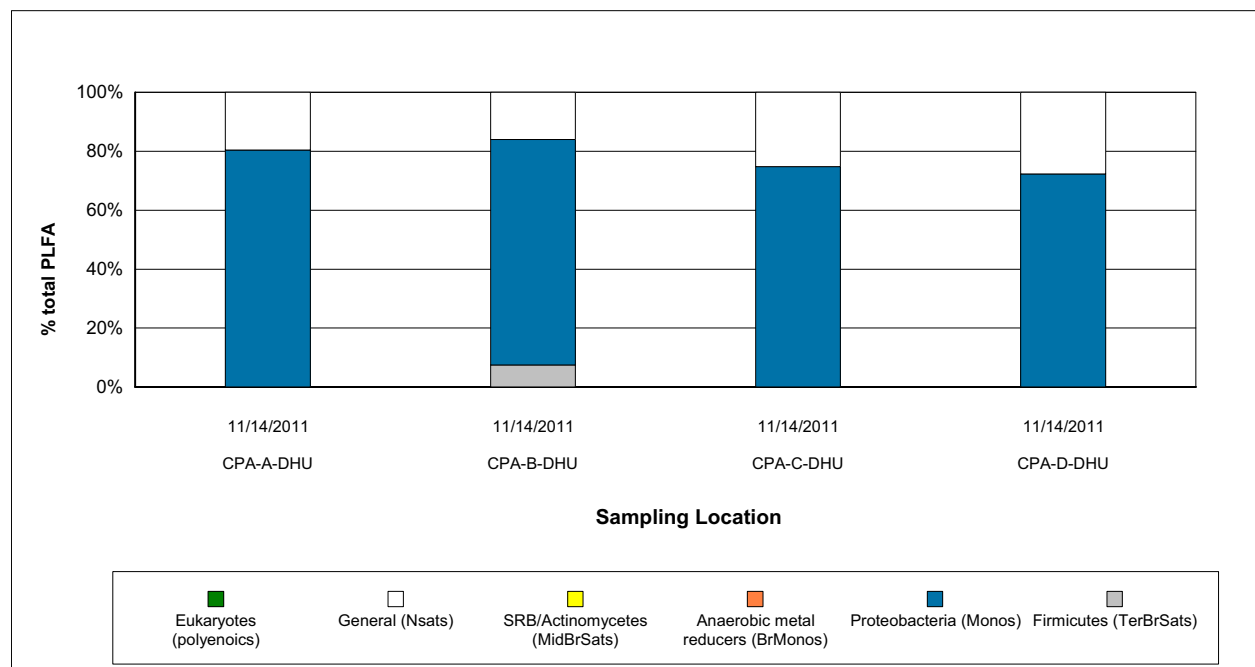
NA = Not Analyzed NS = Not Sampled

**Client:** URS Corp  
**Project:** Solutia WGK CPA 4Q11

**MI Project Number:** 0481K  
**Date Received:** 11/15/2011



**Figure 1.** Biomass content is presented as a cell equivalent based on the total amount of phospholipid fatty acids (PLFA) extracted from a given sample. Total biomass is calculated based upon PLFA attributed to bacterial and eukaryotic biomass



**Figure 2.** Relative percentages of total PLFA structural groups in the samples analyzed. Structural groups are assigned according to PLFA chemical structure, which is related to fatty acid biosynthesis.



2340 Stock Creek Blvd.  
Rockford TN 37853-3044  
Phone: (865) 573-8188  
Fax: (865) 573-8133  
Email: info@microbe.com

**Identifier:** 048IK

**Date Rec:** 11/15/2011

**Report Date:** 12/07/2011

**Client Project #:** 21562722

**Client Project Name:** Solutia WGK CPA 4Q11

**Purchase Order #:** 21562722

**Comments:** The total PLFA biomass for CPA-C-DHU was below the laboratory PQL but above the LQL.

# Phospholipid Fatty Acid Analysis

## Interpretation Guidelines

Phospholipids fatty acids (PLFA) are a main component of the membrane (essentially the “skin”) of microbes and provide a powerful tool for assessing microbial responses to changes in their environment. This type of analysis provides direct information for assessing and monitoring sites where bioremediation processes, including natural attenuation, are of interest. Analysis of the types and amount of PLFA provides a broad based understanding of the entire microbial community with information obtained in three key areas viable biomass, community structure and metabolic activity.

### ***What is the detection limit for PLFA?***

Our limit of detection for PLFA analysis is ~150 picomoles of total PLFA and our limit of quantification is ~500 picomoles of total PLFA. Samples which contain PLFA amounts at or below 150 pmol cannot be used to determine biomass, likewise samples with PLFA content below ~500 pmol are generally considered to contain too few fatty acids to discuss community composition.

### ***How should I interpret the PLFA results?***

Interpreting the results obtained from PLFA analysis can be somewhat difficult, so this document was designed to provide a technical guideline. For convenience, this guideline has been divided into the three key areas.

## Viable Biomass

PLFA analysis is one of the most reliable and accurate methods available for the determination of viable microbial biomass. Phospholipids break down rapidly upon cell death (21, 23), so biomass calculations based on PLFA content do not contain ‘fossil’ lipids of dead cells.

### ***How is biomass measured?***

Viable biomass is determined from the total amount of PLFA detected in a given sample. Since, phospholipids are an essential part of intact cell membranes they provide an accurate measure of viable cells.

### ***How is biomass calculated?***

Biomass levels are reported as cells per gram, mL or bead, and are calculated using a conversion factor of 20,000 cells/pmole of PLFA. This conversion factor is based upon cells grown in laboratory media, and varies somewhat with the type of organism and environmental conditions.

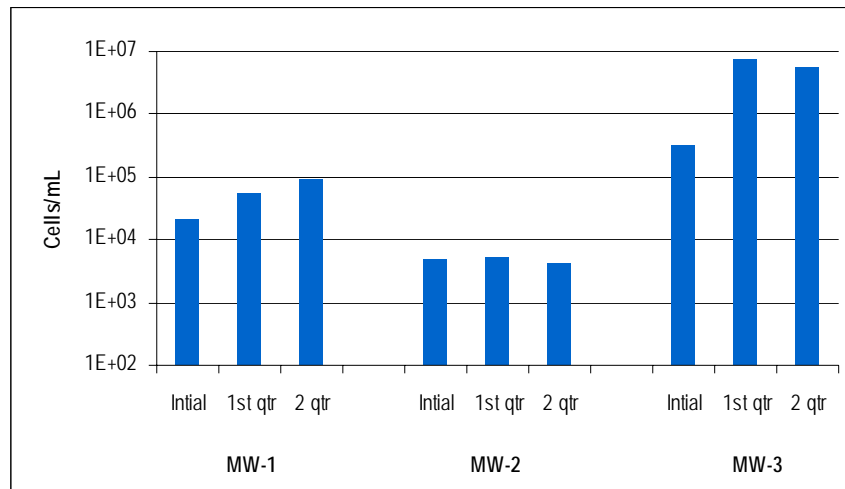
### ***What does the concentration of biomass mean?***

The overall abundance of microbes within a given sample is often used as an indicator of the potential for bioremediation to occur, but understanding the levels of biomass within each sample can be cumbersome. The following are benchmarks that can be used to understand whether the biomass levels are low, moderate or high.

Low	Moderate	High
$10^3$ to $10^4$ cells	$10^5$ to $10^6$ cells	$10^7$ to $10^8$ cells

### ***How do I know if a change in biomass is significant?***

One of the primary functions of using PLFA analysis at contaminated sites is to evaluate how a community responds following a given treatment, but how does one know if the changes observed between two events are significant? As a general rule, biomass levels which increase or decrease by at least an order of magnitude are considered to be significant. However, changes in biomass levels of less than an order of magnitude may still show a trend. It is important to remember that many factors can affect microbial growth, so factors other than the treatment could be influencing the changes observed between sampling events. Some of the factors to consider are: temperature, moisture, pH, etc. The following illustration depicts three types of changes that occurred over time and the conclusions that could be drawn.



**Figure 1.** Biomass content is presented as a cell equivalent based on the total amount of phospholipid fatty acids (PLFA) extracted from a given sample. Total biomass is calculated based upon PLFA attributed to bacterial and eukaryotic biomass (associated with higher organisms).

### **Conclusions from graph above:**

- MW-1 showed a trend of biomass levels increasing steadily over time, although cell concentrations were  $\sim 10^4$  cells/mL at each sampling event.
- MW-2 showed no notable trends or significant changes in biomass concentrations.
- MW-3 showed a significant increase in biomass levels between the initial and 1<sup>st</sup> quarter sampling events (from  $\sim 10^5$  to  $\sim 10^6$  cells/mL).

## Community Structure:

The PLFA in a sample can be separated into particular types, and the resulting PLFA “profile” reflects the proportions of the categories of organisms present in the sample. Because groups of bacteria differ in their metabolic capabilities, determining which bacterial groups are present and their relative distributions within the community can provide information on what metabolic processes are occurring at that location. This in turn can also provide information on the subsurface conditions (i.e. oxidation/reduction status, etc.). Table 1 describes the six major structural groups used and their potential relevance to site specific projects.

Table 1. Description of PLFA structural groups.

PLFA Structural Group	General classification	Potential Relevance to Bioremediation Studies
Monoenoic (Monos)	Abundant in Proteobacteria (Gram negative bacteria), typically fast growing, utilize many carbon sources, and adapt quickly to a variety of environments.	Proteobacteria is one of the largest groups of bacteria and represents a wide variety of both aerobes and anaerobes. The majority of Hydrocarbon utilizing bacteria fall within the Proteobacteria
Terminally Branched Saturated (TerBrSats)	Characteristic of Firmicutes (Low G+C Gram-positive bacteria), and also found in Bacteriodes, and some Gram-negative bacteria (especially anaerobes).	Firmicutes are indicative of presence of anaerobic fermenting bacteria (mainly <i>Clostridia</i> / <i>Bacteriodes</i> -like), which produce the H <sub>2</sub> necessary for reductive dechlorination
Branched Monoenoic (BrMonos)	Found in the cell membranes of micro-aerophiles and anaerobes, such as sulfate- or iron-reducing bacteria	In contaminated environments high proportions are often associated with anaerobic sulfate and iron reducing bacteria
Mid-Chain Branched Saturated (MidBrSats)	Common in sulfate reducing bacteria and also Actinobacteria (High G+C Gram-positive bacteria).	In contaminated environments high proportions are often associated with anaerobic sulfate and iron reducing bacteria
Normal Saturated (Nsats)	Found in all organisms.	High proportions often indicate less diverse populations.
Polyenoic	Found in eukaryotes such as fungi, protozoa, algae, higher plants, and animals.	Eukaryotic scavengers will often rise up and prey on contaminant utilizing bacteria

Following are answers to some of the common questions about community composition and some detailed descriptions of some typical shifts which can be observed between sampling events.

### **How is the community structure data presented?**

Community structure data is presented as percentage (%) of the total amount of PLFA. In order to relate the complex mixture of PLFA to the organisms present, the ratio of a specific PLFA group is determined (detailed in Table 1 above), and this corresponds to the proportion of the related bacterial classification within the overall community structure. Because normal saturated PLFA are found in both prokaryotes (bacteria) and eukaryotes (fungi, protozoa, diatoms etc), their distribution provides little insight into the types of microbes that are present at a sampling location. However, high proportions of normal saturates are often associated with less diverse microbial populations.

### **How can community structure data be used to manage my site?**

It is important to understand that microbial communities are often a mixture of different types of bacteria (e.g. aerobes, sulfate reducers, methanogens, etc) with the abundance of each group behaving like a seesaw, i.e. as the population of one group increases, another is likely decreasing, mostly due to competition for available resources. The PLFA profile of a sample provides a “fingerprint” of the microbial community, showing relative proportions of the specific bacterial types at the time of sampling. This is a great tool for detecting shifts within the community over time and also to evaluate similarities/differences between sampling locations. It is important to note that PLFA analysis of community structure is analyzing the microbes directly, not just secondary breakdown products. So this provides evidence of how the entire microbial community is responding to the treatment.

### How do I recognize community shifts and what they mean?

Shifts in the community structure are indications of changing conditions and their effect on the microbial community, and, by extension on the metabolic processes occurring at the sampling location. Some of the more commonly seen shifts within the community are illustrated and discussed below:

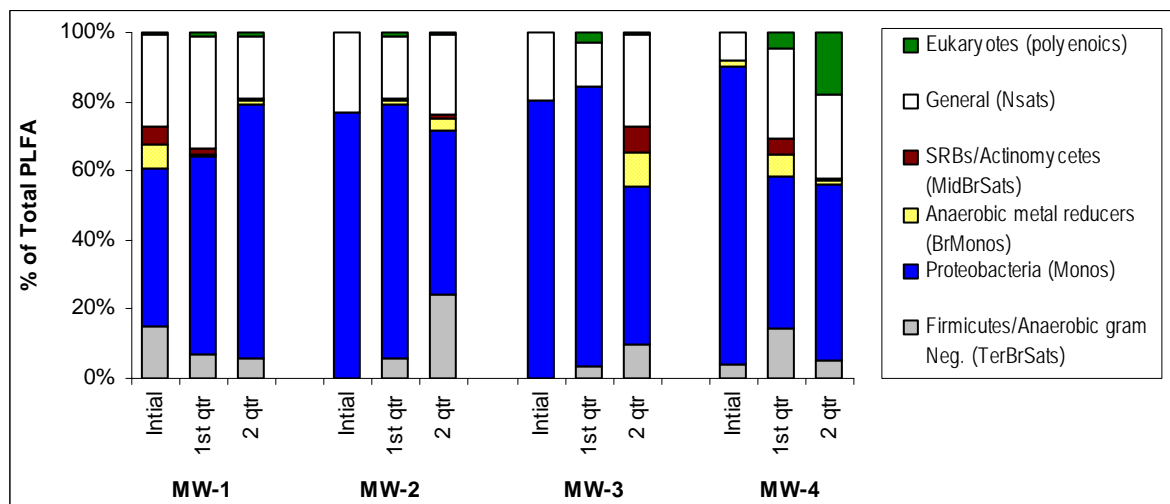


Figure 2. Relative percentages of total PLFA structural groups in the samples analyzed. Structural groups are assigned according to PLFA chemical structure, which is related to fatty acid biosynthesis. See Table 1 for detailed descriptions of structural groups.

- **Increased Proteobacteria**

Proportions of Proteobacteria are of interest because it is one of the largest groups of bacteria and represents a wide variety of both aerobic and anaerobes. The majority of hydrocarbons (including benzene and naphthalene) are metabolized by some member of Proteobacteria, mainly due to their ability to grow opportunistically, quickly taking advantage of available food (i.e. hydrocarbons), and adapting quickly to changes in the environment. The detection of increased proportions of Proteobacteria coupled with increased biomass suggests that the Proteobacteria are consuming something. In situations where it is important to determine the extent to which the Proteobacteria are utilizing anaerobic or aerobic pathways, it is possible to measure relative proportions of specific biomarkers that are associated with anaerobic or aerobic pathways thus separating the Proteobacteria into different groups, based on pathways used. Sample MW-1 from Figure 2 depicts a shift in community structure where the proportion of Proteobacteria has increased over time.

- **Increased Firmicutes/Anaerobic Gram negative bacteria**

Increased proportions of Firmicutes/Anaerobic Gram negative bacteria generally indicate that conditions are becoming more reductive (i.e. more anaerobic). Proportions of Firmicutes are of particular interest in sites contaminated with chlorinated hydrocarbons because Firmicutes include anaerobic fermenting bacteria (mainly *Clostridia/Bacteriodes*-like), which produce the  $H_2$  necessary for reductive dechlorination.

Enhanced bioremediation of chlorinated solvents often employs the injection of fermentable substrates which, when utilized by fermenting bacteria, results in the release of  $H_2$ . Engineered shifts in the microbial community can be shown by observing increased proportions Firmicutes following an injection of fermentable substrate. Through long-term monitoring of the community structure it is possible to know when re-injection may be necessary or desirable. Sample MW-2 from Figure 2 depicts a shift in community structure where the proportion of Firmicutes has increased over time.

- **Increased anaerobic metal reducing bacteria (BrMonos) and SRB/Actinomycetes (MidBrSats)**

An increase in the proportions of metal and sulfate reducing bacterial groups, especially when combined with shifts in the other bacterial groups, can provide information helpful to monitoring bioremediation. Generally, an increase in metal and sulfate reducers points to more reduced (anaerobic) conditions at the sampled location. This is especially true if there is an increase in Firmicutes at the same time. Large increases in either metal and sulfate reducers, particularly if accompanied by a decrease in Firmicutes, may suggest that conditions are becoming increasingly reduced. In this situation the metal and sulfate reducers may be out-competing dechlorinators for available  $H_2$ , thereby limiting the potential for reductive dechlorination at that location. Sample MW-3 from Figure 2 depicts a shift in community structure where the proportion of metal reducing bacteria has increased over time.

- **Increased Eukaryotes**

Eukaryotes include organisms such as fungi, protozoa, and diatoms. At a contaminated location, an increase in eukaryotes, particularly if seen with a decrease in the contaminant utilizing bacteria, suggests that eukaryotic scavengers are preying upon what had been an abundance of bacteria which were consuming the contaminant. Sample MW-4 from Figure 2 depicts a shift in community structure where the proportion of eukaryotes has increased over time.

### Physiological status of Proteobacteria

The membrane of a microbe adapts to the changing conditions of its environment, and these changes are reflected in the PLFA. Toxic compounds or environmental conditions may disrupt the membrane and some bacteria respond by making *trans* fatty acids instead of the usual *cis* fatty acids (7) in order to strengthen the cell membrane, making it less permeable. Many Proteobacteria respond to lack of available substrate or to highly toxic conditions by making cyclopropyl (7) or mid-chain branched fatty acids (20) which point to less energy expenditure and a slowed growth rate. The physiological status ratios for Decreased Permeability (*trans/cis* ratio) and for Slowed Growth (*cy/cis* ratio) are based on dividing the amount of the fatty acid induced by environmental conditions by the amount of its biosynthetic precursor.

### ***What does slowed growth or decreased permeability mean?***

Ratios for slowed growth and for decreased permeability of the cell membrane provide information on the “health” of the Gram negative community, that is, how this population is responding to the conditions present in the environment. It should be noted that one must be cautious when interpreting these measures from only one sampling event. The most effective way to use the physiological status indicators is in long term monitoring and comparing how these ratios increase/decrease over time.

A marked increase in either of these ratios suggests a change in environment which is less favorable to the Gram negative Proteobacteria population. The ratio for slowed growth is a relative measure, and does not directly correspond to log or stationary phases of growth, but is useful as a comparison of growth rates among sampling locations and also over time. An increase in this ratio (i.e. slower growth rate) suggests a change in conditions which is not as supportive of rapid, “healthy” growth of the Gram negative population, often due to reduced available substrate (food). A larger ratio for decreased permeability suggests that the environment has become more toxic to the Gram negative population, requiring energy expenditure to produce *trans* fatty acids in order to make the membrane more rigid.

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